

“Members should incorporate adaptation strategies with their clients to anticipate extreme weather events and minimize adverse effects on the environment, economy and public health”

AIA Code of Ethics

ENERGY & WATER RESOURCES ARE DWINDLING IT IS TIME TO TAKE ACTION

UNDERSTANDING RESOURCE DEPLETION

Water and energy are essential to sustaining human life on Earth. All sources of energy require water in their production processes and energy is required to provide water for human use and consumption. It is time to take action to ensure a future capable of meeting the water and energy needs of our world.

WATER: Our planet is 70% of the Earth is covered by water, but only 3% of that is fresh and most of that is not accessible for daily use. In addition, 70% of freshwater is used for agriculture and 60% of that is wasted because of leaky and inefficient systems. It is estimated that, by 2025, two-thirds of the world’s population will face water shortages. Pollution, commercial agriculture and population growth have the biggest impact on water resource depletion. It is not just a global issue, it is hitting close to home as well. While the sea level is rising in many areas in Florida, groundwater levels are dropping. Freshwater surface depletion is leading to saltwater intrusion and subsidence, causing sinkholes to form and water levels to drop. West central Florida is already building desalination plants. Our natural springs are one of our greatest water resources and they are drying up at an alarming rate due to overextraction. There has been a 32% decrease in average spring flow from 1950 to 2010 and Florida’s demand for fresh water is estimated to increase 28% by 2030 compared to 2005 levels.

ENERGY: Both the federal government and the AIA Climate Action Plan call for a significant reduction of CO2 emissions by 2030 and 2040 by minimizing our dependency on fossil fuels and increasing the production of renewable energy. As of 2019, 75% of Florida’s net energy production came from natural gas with only 4% coming from renewable sources, including solar and biomass. Fossil fuels are being depleted faster than they can be produced. It is projected that oil reserves worldwide will be depleted by 2040 with natural gas and coal following by 2100. Florida consumes almost eight times the amount of energy it produces and ranks as the second largest producer of energy in the U.S.

SOURCES: https://www.usgs.gov/special-topic/water-science-school/science/groundwater-decline-and-depletion?qt-science_center_objects=0#qt-science_center_objects; <https://www.worldwildlife.org/threats/water-scarcity>; https://www.un.org/waterforlifedecade/water_and_energy.shtml#:~:text=Energy%20and%20water%20are%20intricately,for%20biofuels%2C%20and%20powering%20turbines.; <https://www.nationalgeographic.com/science/article/partner-content-worried-about-water-floridan-aquifer>; <https://www.eia.gov/environment/emissions/state/>; <https://www.epa.gov/sites/default/files/2017-02/documents/ws-ourwater-florida-state-fact-sheet.pdf>; https://www.eia.gov/electricity/sales_revenue_price/pdf/table5_a.pdf; <https://www.eia.gov/state/analysis.php?sid=FL>; <https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies/>; <https://www.aia.org/resources/6307290-climate-action-plan>

WATER & ENERGY FACTS

- 90% of global power generation is water-intense.
- By 2035, the energy sector’s water consumption will increase by 85%.
- According to the International Energy Agency, the world will need almost 60% more energy in 2030 than in 2020.
- Florida residents use between 100 to 150 gallons of water a day each.
- 900 million gallons of water a day are used to irrigate private lawns in Florida.
- The space requirement to produce one half of the energy now used in the U.S. and Canada will require an estimated 20% of the land area of those two countries.
- The electricity sector as a whole makes up 43.5% of Florida’s total emissions, which is disproportionately higher than the national average.
- Natural gas (mostly burned for electricity) produces 34.7% of Florida’s CO2 emissions.
- Petroleum produces 51.8% of the state’s emissions.
- Florida ranks fifth in the nation in solar generating capacity.

TALKING POINTS FOR CLIENTS

- Efficiency is the key to conservation for both water and energy resources
- High-performance buildings use between 65-85% less energy and water than a typically constructed one.

RESOURCES FOR ACTION

<https://www.collaborativedesign.org/water-reuse-practice-guide/>
<https://www.wbdg.org/resources/water-conservation>
<https://www.wbdg.org/resources/building-systems-efficiency>
<https://www.energy.gov/eere/buildings/guides-and-case-studies-hot-humid-climates>