INDIANA UNIVERSITY

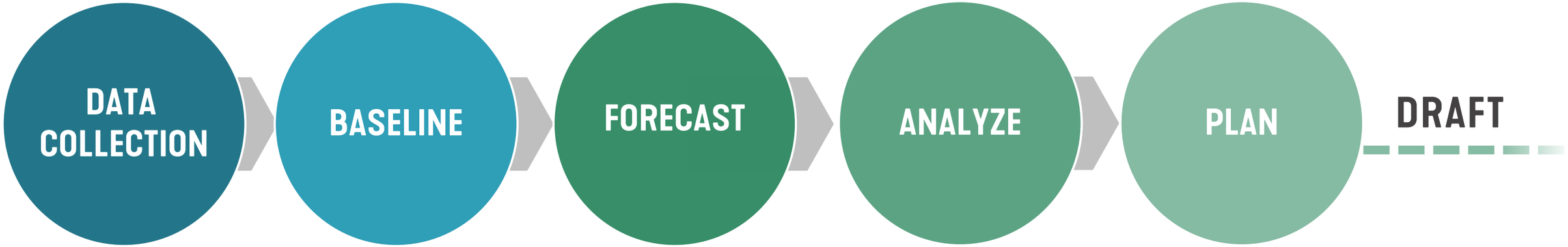
CLIMATE ACTION PLANNING COMMITTEE

JANUARY 13, 2023 | CLIMATE SCENARIOS

SMITHGROUP

TOPICS FOR DISCUSSION

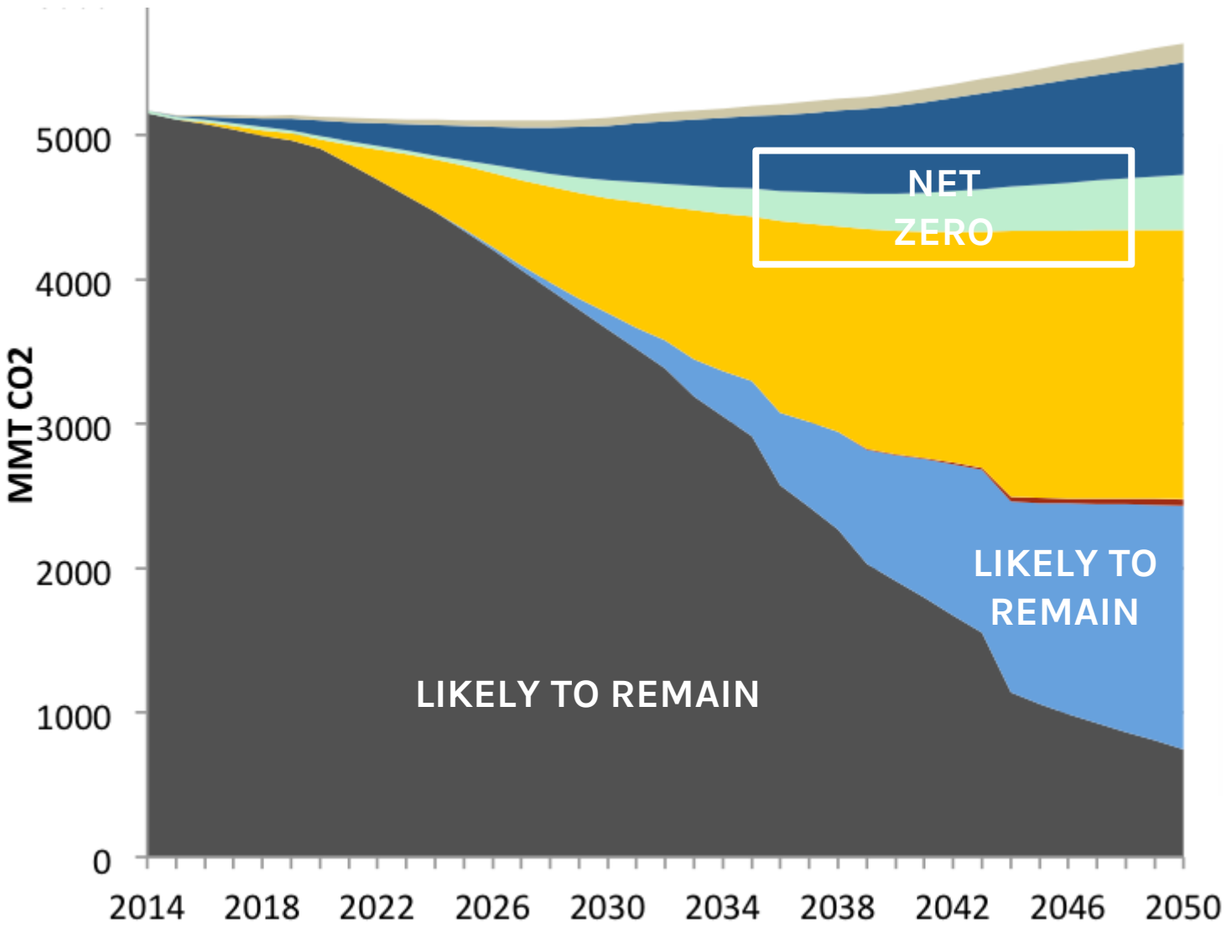
PROCESS



WHAT WE'VE DISCOVERED

HOW WE SEE YOUR CURRENT DECARBONIZATION PATHWAY

WHAT HAVE WE MISSED?



POSITIVE EMISSIONS CHANGE: GROWTH- LIKELY TO STAY SAME, SMALL INCREASE POTENTIALLY

POSITIVE EMISSIONS CHANGE:
ENERGY EFFICIENCY IN FIXTURES GROWING

POSITIVE EMISSIONS CHANGE:
BUILDING SOLAR

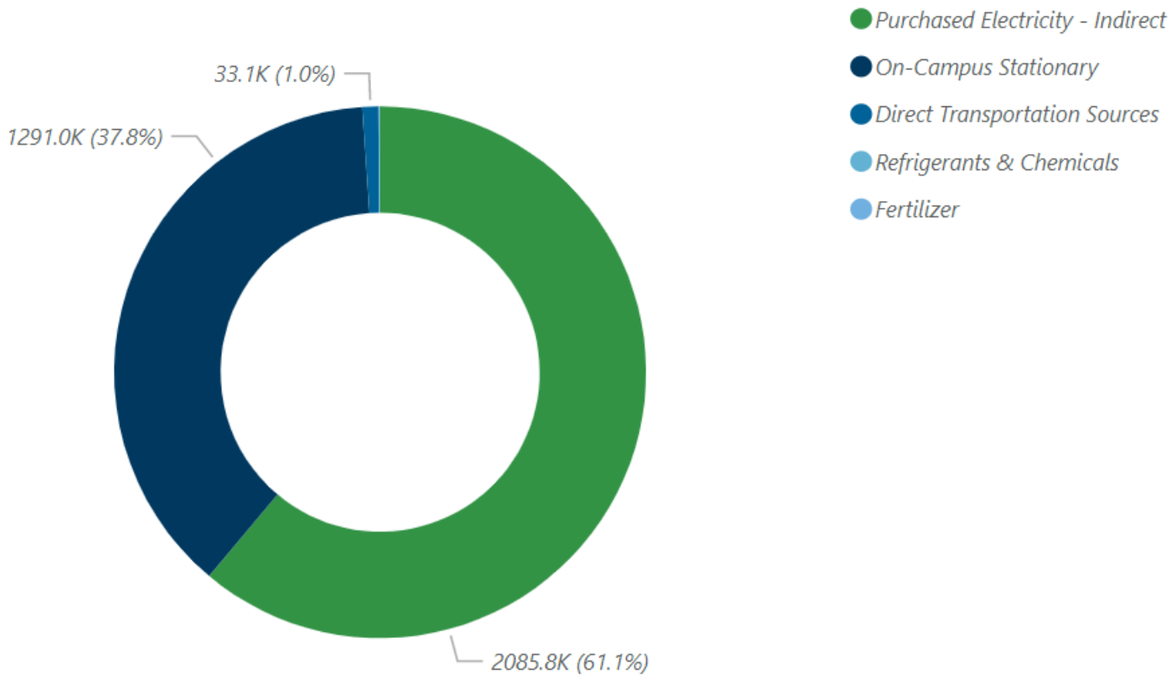
POSITIVE EMISSIONS CHANGE:
BUILDING PERFORMANCE

POTENTIAL LARGE EMISSIONS CHANGE:
STEAM PLANT PERFORMANCE

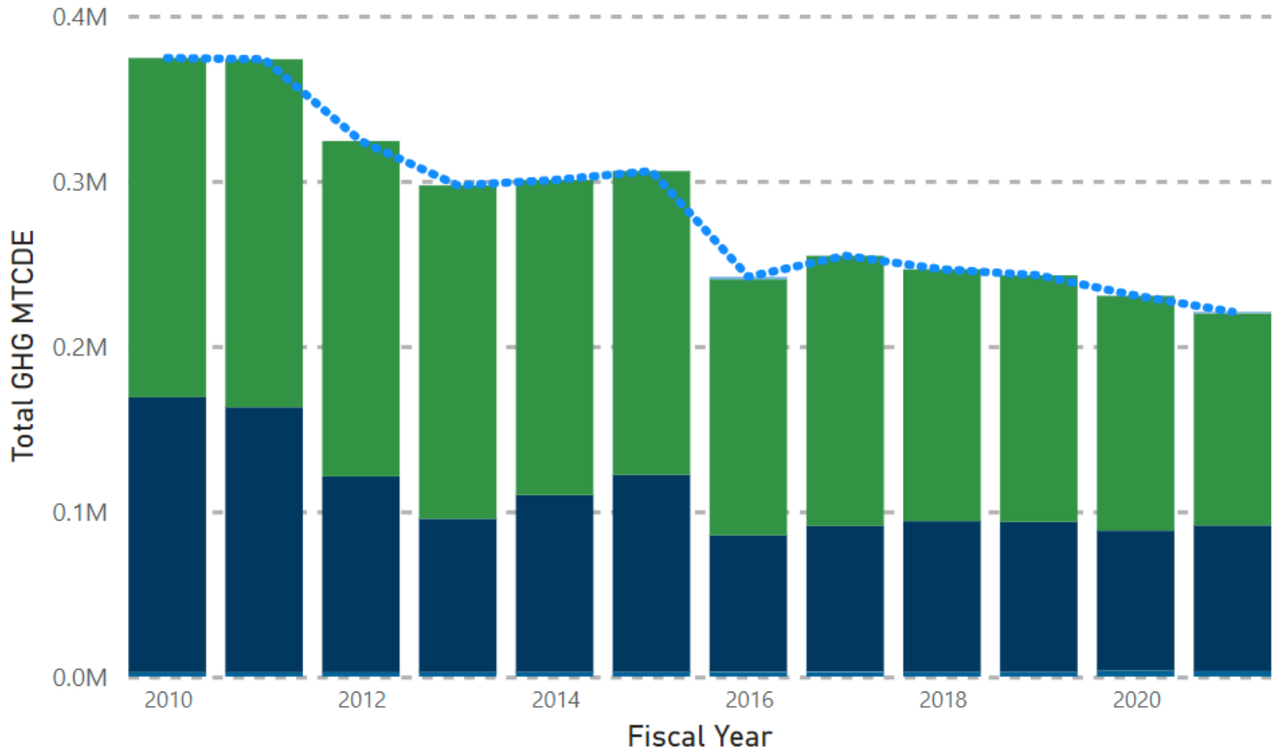
ROOM FOR IMPROVEMENT:
ELECTRICITY SUPPLY DECARBONIZATION

EMISSIONS TODAY

GHG EMISSIONS BY SOURCE



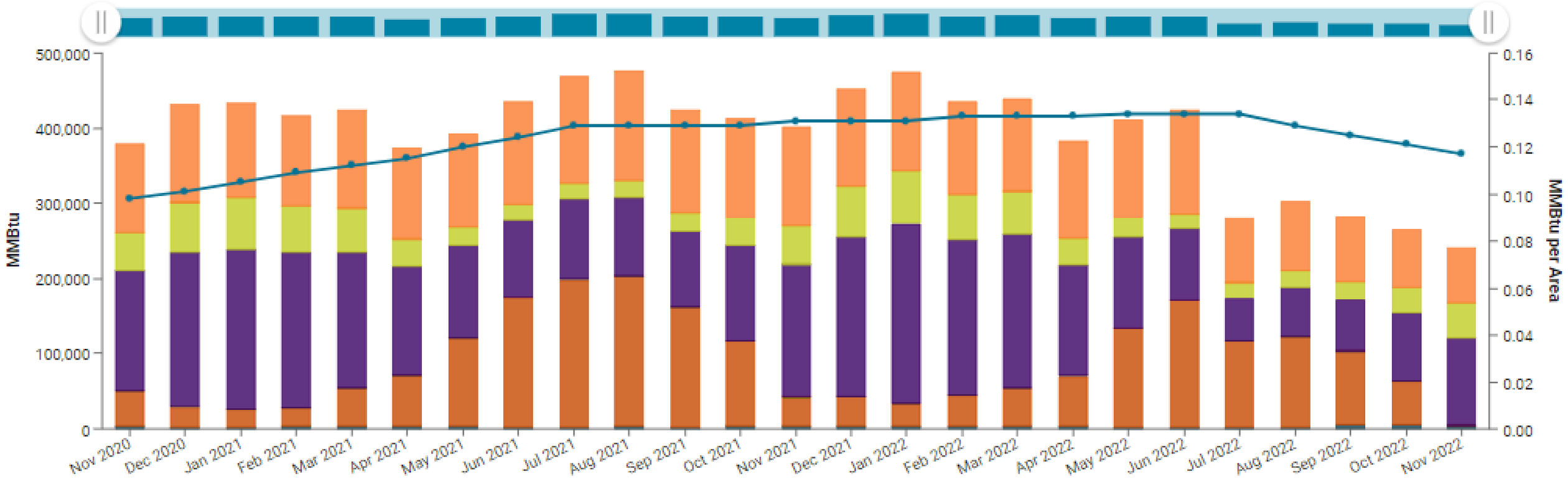
GHG EMISSIONS OVER TIME



SMITHGROUP

ENERGY TODAY

Indiana University: System Wide EUI



ELECTRICITY TODAY IS A CONSTANT PROBLEM FOR GHG

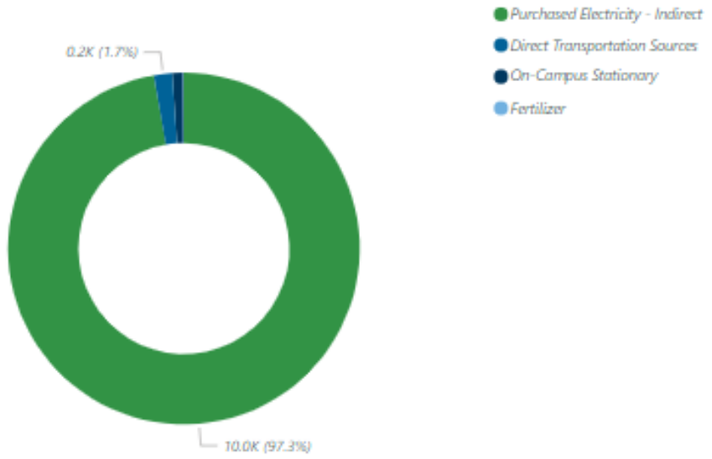
Greenhouse Gas Emissions Dashboard

INDIANA UNIVERSITY

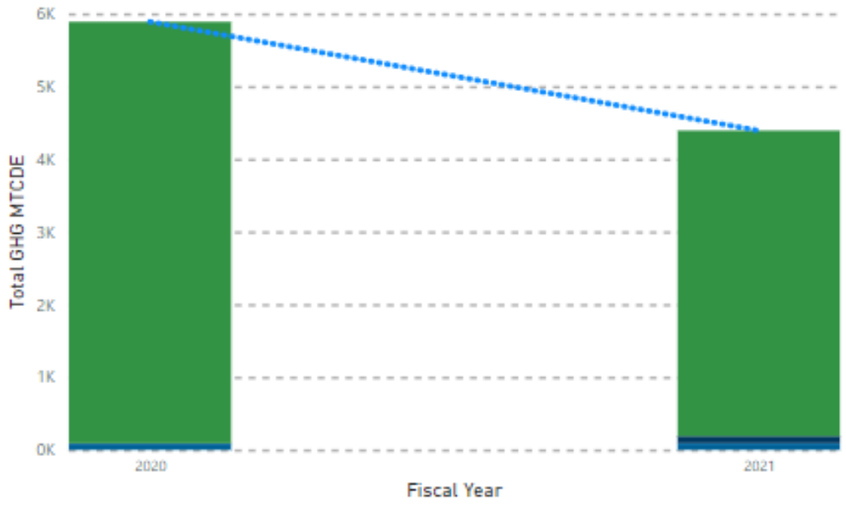
Click to Filter by Campus

IU Bloomington	IU East	IU Kokomo	IU Northwest	IU South Bend	IU Southeast	IUPUI

GHG EMISSIONS BY SOURCE



GHG EMISSIONS OVER TIME



ANALYZING 2021 EUI DATA

Campus

- [ ] Bloomington
- [ ] Indianapolis
- [ ] Kokomo
- [ ] New Albany
- [x] Northwest
- [ ] Richmond
- [ ] South Bend

Building Use

- [x] ACADEMIC
- [x] LIBRARY
- [x] UNION
- [x] ATHLETICS
- [x] AUXILIARIES
- [x] HOSPITALS
- [x] RESIDENTIAL PROGRAMS
- [x] SERVICE
- [x] ADMIN SUPPORT

Building Name

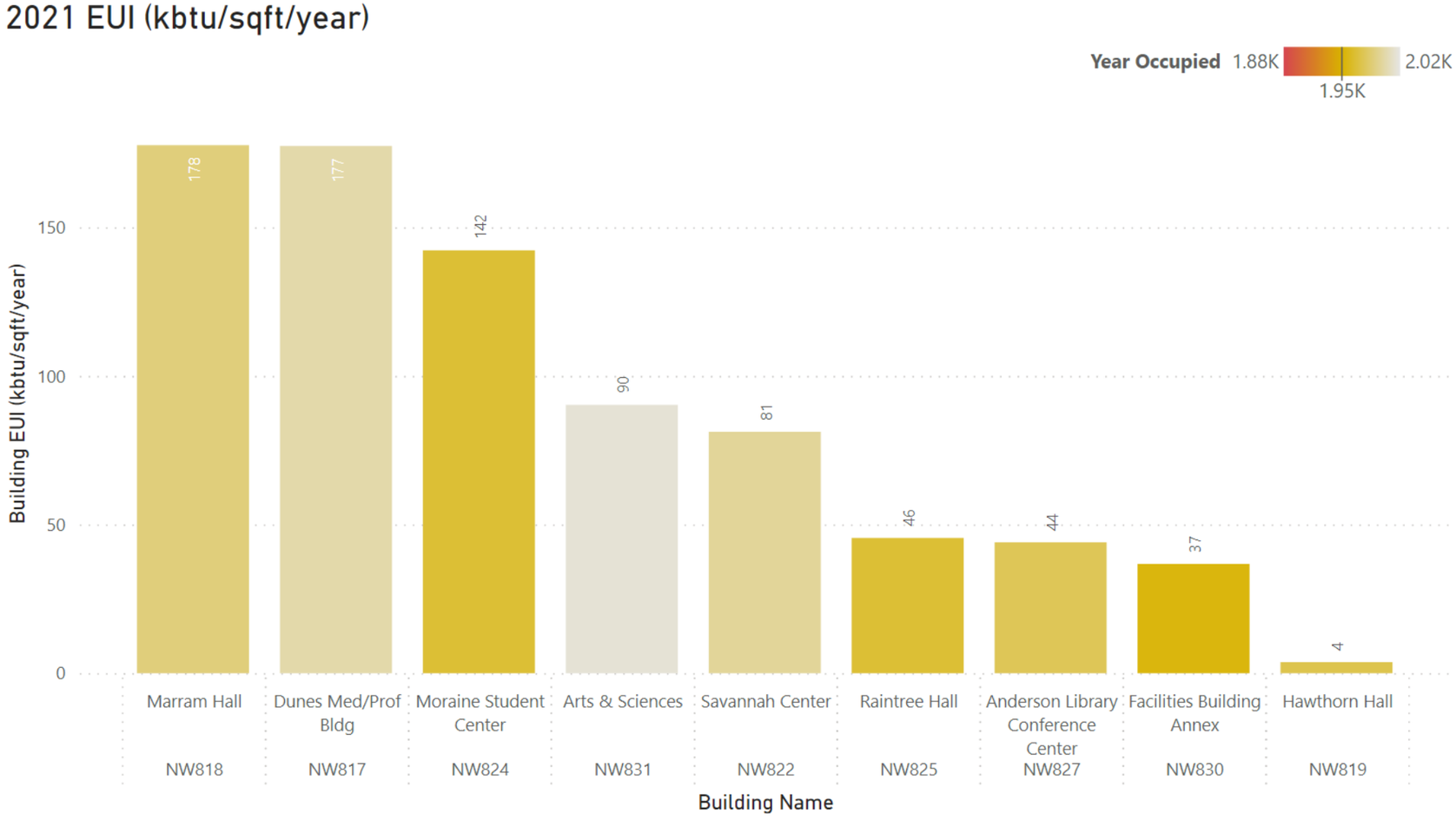
All

3,460,873
Sum of Total Electrical Usage (kWh/yr)

62,721,109
Sum of Total Nat Gas Usage (kbtu/yr)

10,725,154
Sum of CO2 (Total)

2021 EUI (kbtu/sqft/year)



THE NEW NORMAL?

New LEED building certifications show IU's continued dedication to green construction

By **IU Bloomington Today** December 08, 2022

Two building projects on the Indiana University Bloomington campus recently received the globally recognized U.S. Green Building Council's LEED certification: the Health Sciences Building earned LEED gold, and the renovation of the IU Museum of Archaeology and Anthropology earned it LEED silver.

The IU Health Sciences Building. *Photo by James Brosher, Indiana University*

IU has had a long-term commitment to developing and renovating buildings to LEED standards, with IU's first LEED certification achieved in 2009 for the IUB Research and Teaching Preserve.

The university has a total of 35 certified projects that conserve resources and support public health and the environment across Indiana, spanning from Evansville to South Bend, with additional projects currently undergoing the certification process.

IU Museum of Archaeology and Anthropology. *Photo by Matt Sieber, Indiana University*

Designing, constructing and renovating buildings to LEED certification standards reduces greenhouse gas emissions and energy use, conserves water, reduces waste sent to landfills and provides better indoor environmental quality.

IU's commitment to LEED standards also is an important strategy of the comprehensive work of the IU Climate Action Planning Committee to reduce greenhouse gas emissions in service of our campus and statewide communities.

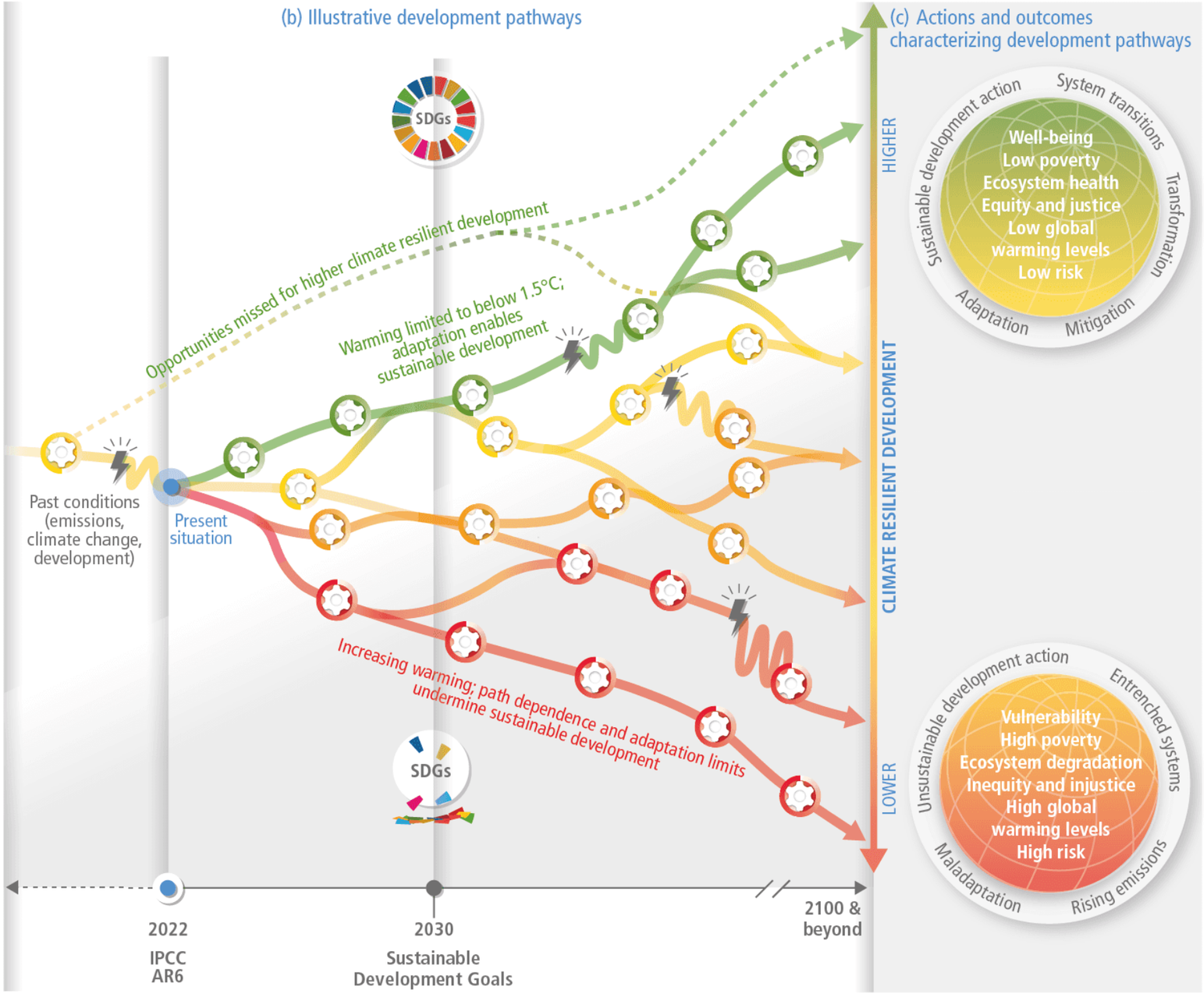
Learn more about IU's LEED projects at the Capital Planning and Facilities LEED projects page.

IUPUI named 'Bicycle Friendly University'

By **IUPUI Today** December 14, 2022

Credit: *Liz Kaye, Indiana University*

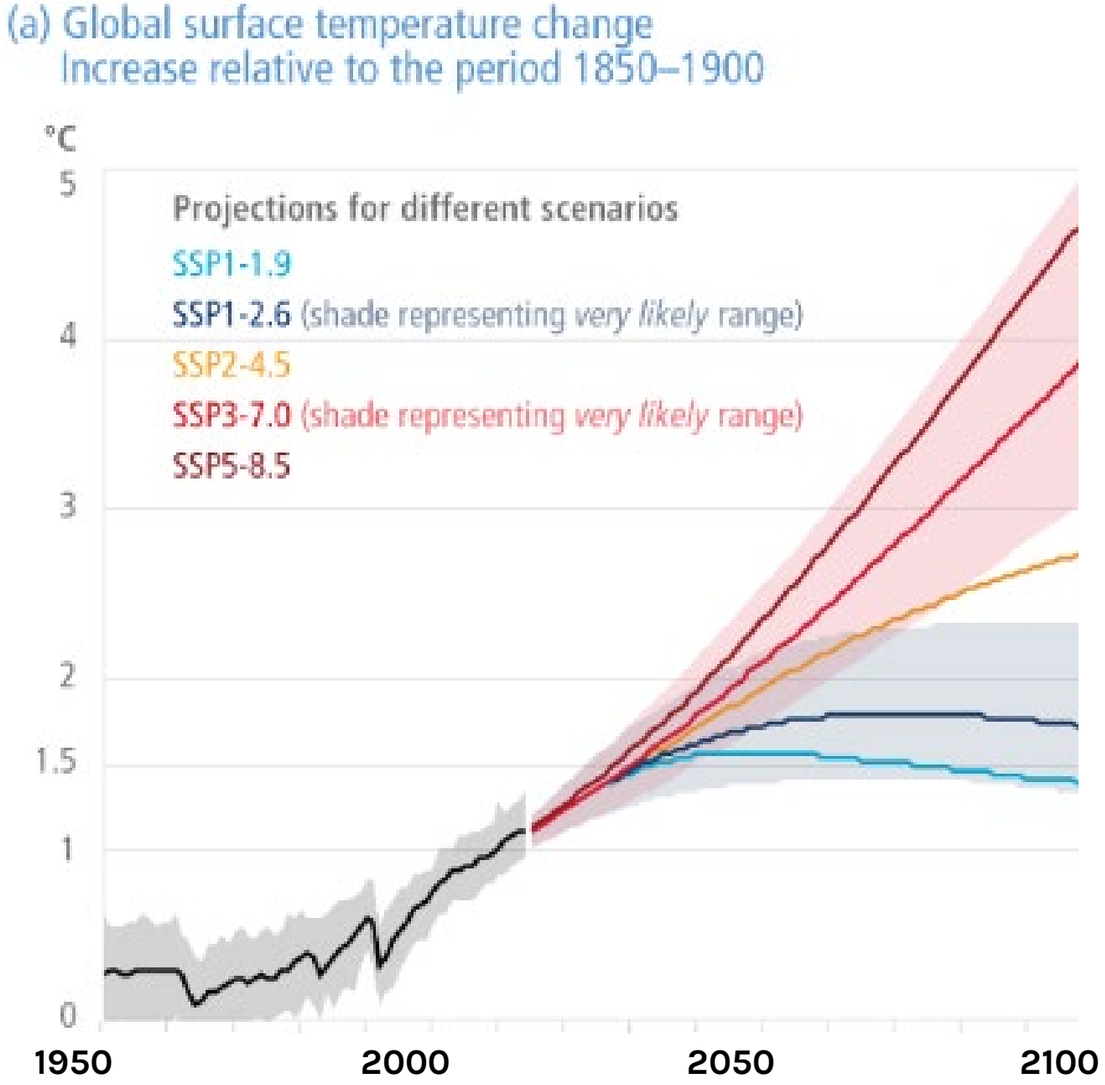
DRIVERS DEEP-DIVE



THE IPCC INDICATES BOTH POSITIVE AND NEGATIVE SCENARIOS FOR CLIMATE CHANGE MITIGATION

POSITIVE SCENARIO– WARMING IS LIMITED TO A 1.5 C INCREASE

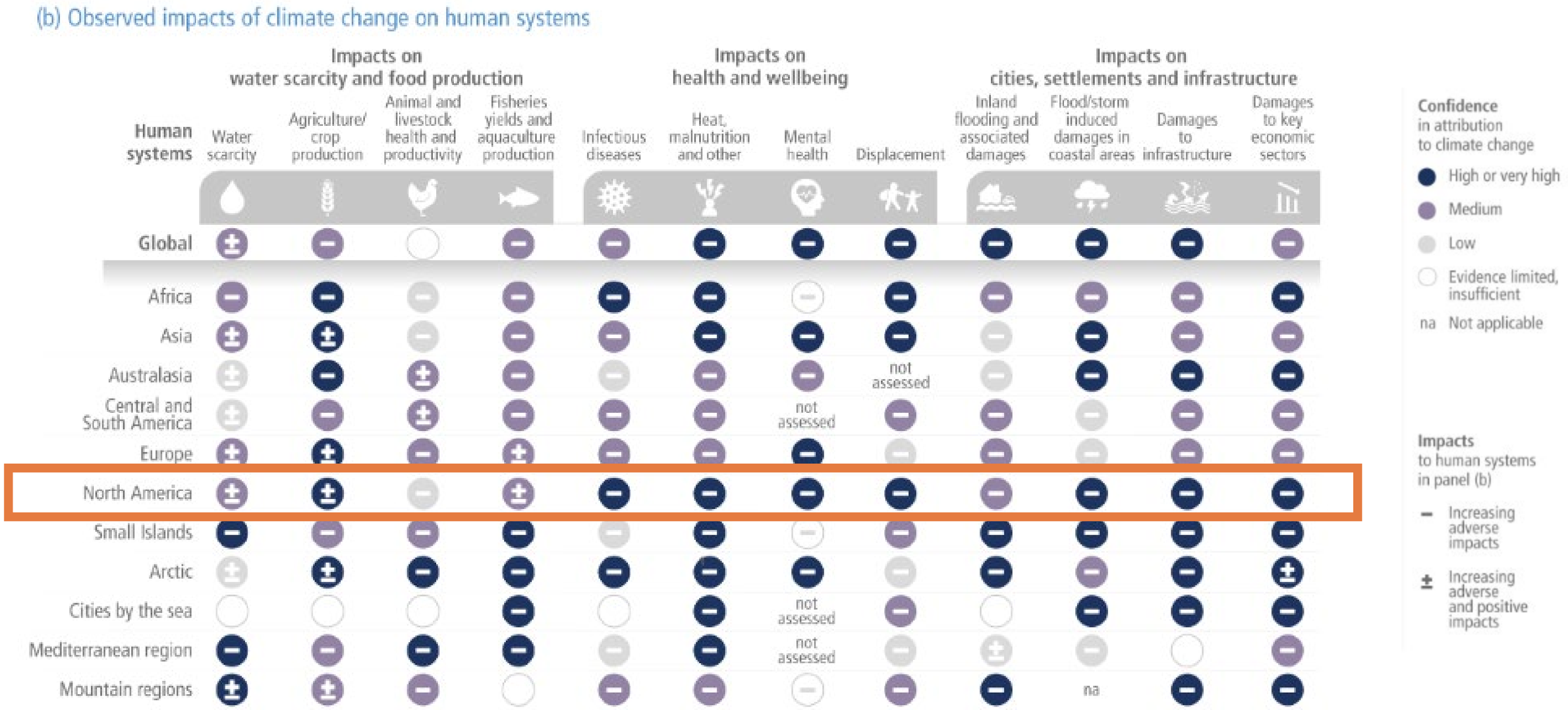
NEGATIVE SCENARIO– WARMING INCREASES UP TO 8.5 C



TEMPERATURE RANGE IS LIKELY TO FALL SOMEWHERE IN BETWEEN

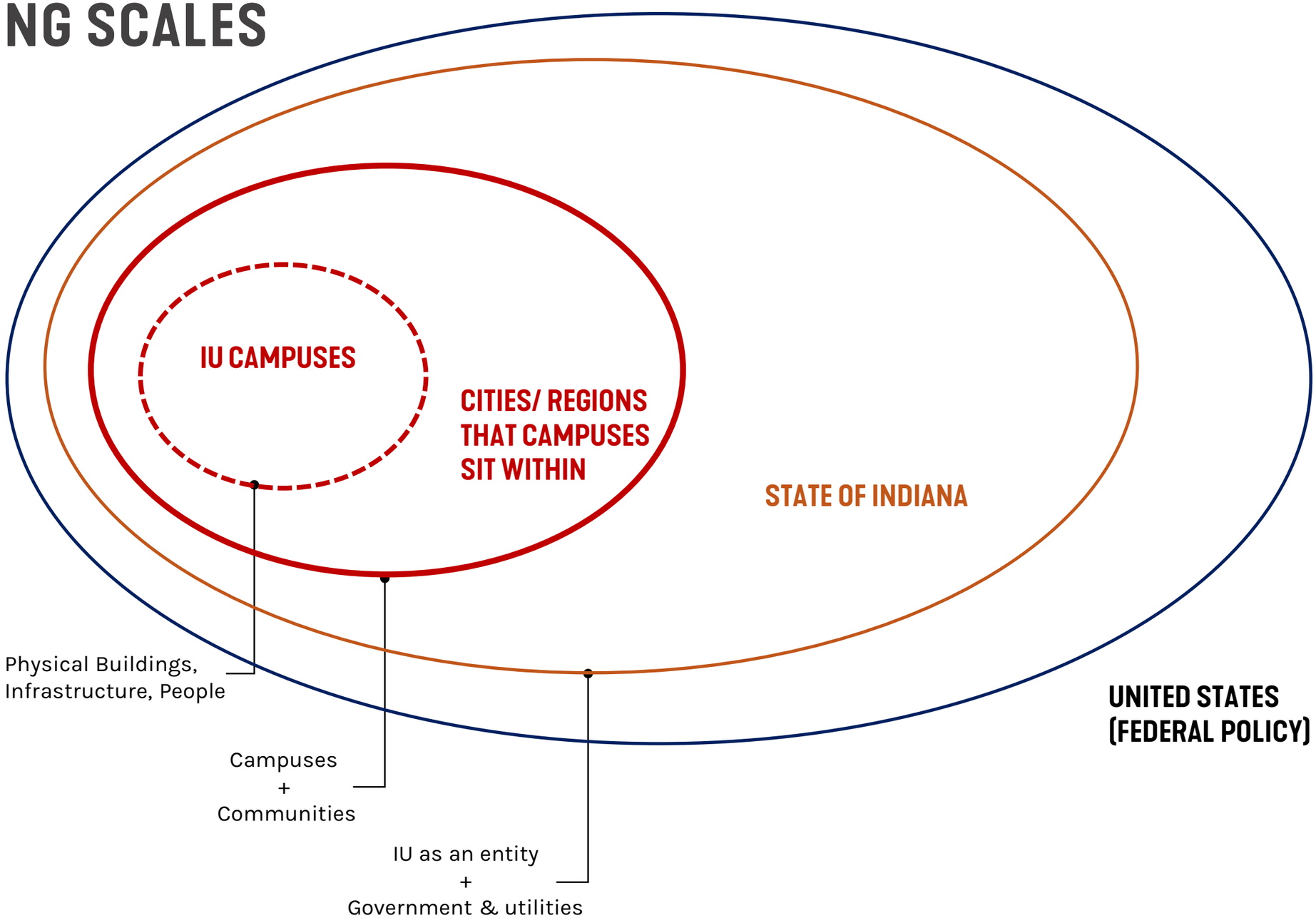
AND SO WILL THE RANGE OF IMPACTS

WITH THESE RISES COME ECONOMIC AND ENVIRONMENTAL IMPACT



POLICY DRIVERS

UNDERSTANDING SCALES OF INFLUENCE



2022: THE YEAR THE US "RECOMMITS"

After rejoining the Paris Agreement and restoring U.S. leadership on the world stage, President Biden created the National Climate Task Force. The federal mandate now works to:

- Reducing U.S. greenhouse gas emissions 50-52% below 2005 levels in 2030
- Reaching 100% carbon pollution-free electricity by 2035
- Achieving a net-zero emissions economy by 2050
- Delivering 40% of the benefits from federal investments in climate and clean energy to disadvantaged communities

Inflation Reduction Act – EV's, energy saving appliances
Bipartisan Infrastructure Act – energy infrastructure, community resilience projects
Building Performance Standards – reducing emissions + increasing energy efficiency in the built environment
Better Climate Challenge – emissions reductions commitments from institutions

IMPACT ON THE STATE OF INDIANA?

OHIO STATE PARTNERSHIP

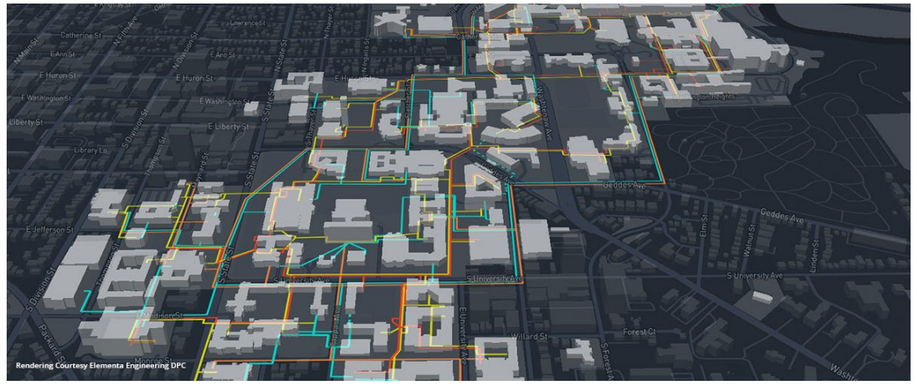
EXAMPLE OF LONG-TERM LEASING ON ENERGY

ENGIE (50%) and Axium Infrastructure US (50%) have won a 50-year concession valued at $1.165 billion USD to address The Ohio State University's energy sustainability goals for its 485-building campus in Columbus, Ohio, one of the largest university campuses in the United States.

- Smart meters
- Indoor lighting
- Outdoor lighting
- Steam upgrade, domestic hot water, and utility tunnels
- Extends life of the utility plant by 50 years
- $150 million in partnership on energy research
- Smart Campus Challenge- student pitch, sustainability project that sells innovative ideas to CEO's, OSU alumni, and other civic leaders

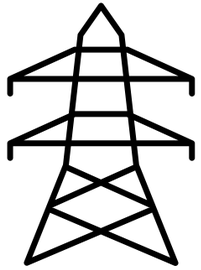
UNIVERSITY OF MICHIGAN: SELF-FINANCED

- Installing geothermal heating and cooling systems as a first step in a phased transition of heating and cooling systems.
- Electrifying the Ann Arbor and Dearborn campus buses as a first step toward decarbonizing U-M's entire vehicle fleet.
- Initiating a campus master planning process that includes carbon neutrality at its center, in collaboration with faculty experts.
- Making all building projects (renovation, additions, construction) compatible with renewable-energy-driven heating and cooling systems and developing overall standards for renovation and construction that address increased energy efficiency and lower carbon emissions.
- Launching a revolving fund for energy efficiency projects, beginning with $25 million over five years. Energy savings will be reinvested into the fund, which will accelerate energy conservation projects on all three campuses and Michigan Medicine.
- Submitting a request for proposals to secure all purchased electricity from renewable sources.
- Forming several distinct working groups, consisting of specialists from across the university, to develop roadmaps for implementing a wide range of commission recommendations.

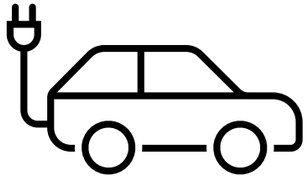


BEHAVIORAL CHANGE

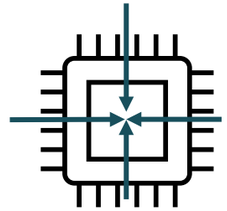
RESEARCH PROGRAMS



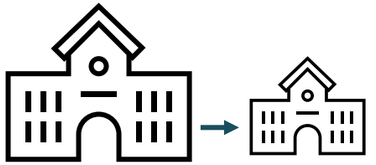
UTILITY & FACILITY PLANNING



MOBILITY SHIFTS



PROGRAM IMPACT ON EMISSIONS



SPACE CONSOLIDATION

FUTURE MEETINGS WILL DEEP-DIVE INTO EACH OF THESE TOPICS

NEXT STEPS

BEHAVIORAL CHANGE

- Space utilization (during and outside of academic year)
- Class scheduling
- Summer and winter programming
- Temperature sets
- Voluntary student activities
- Virtual meetings, learning, and research