INDIANA UNIVERSITY CLIMATE ACTION PLAN

IU CAP Committee Meeting

October 11, 2022

FOR IU CAP COMMITTEE USE ONLY

SMITHGROUP

AGENDA

Public Forum Sessions

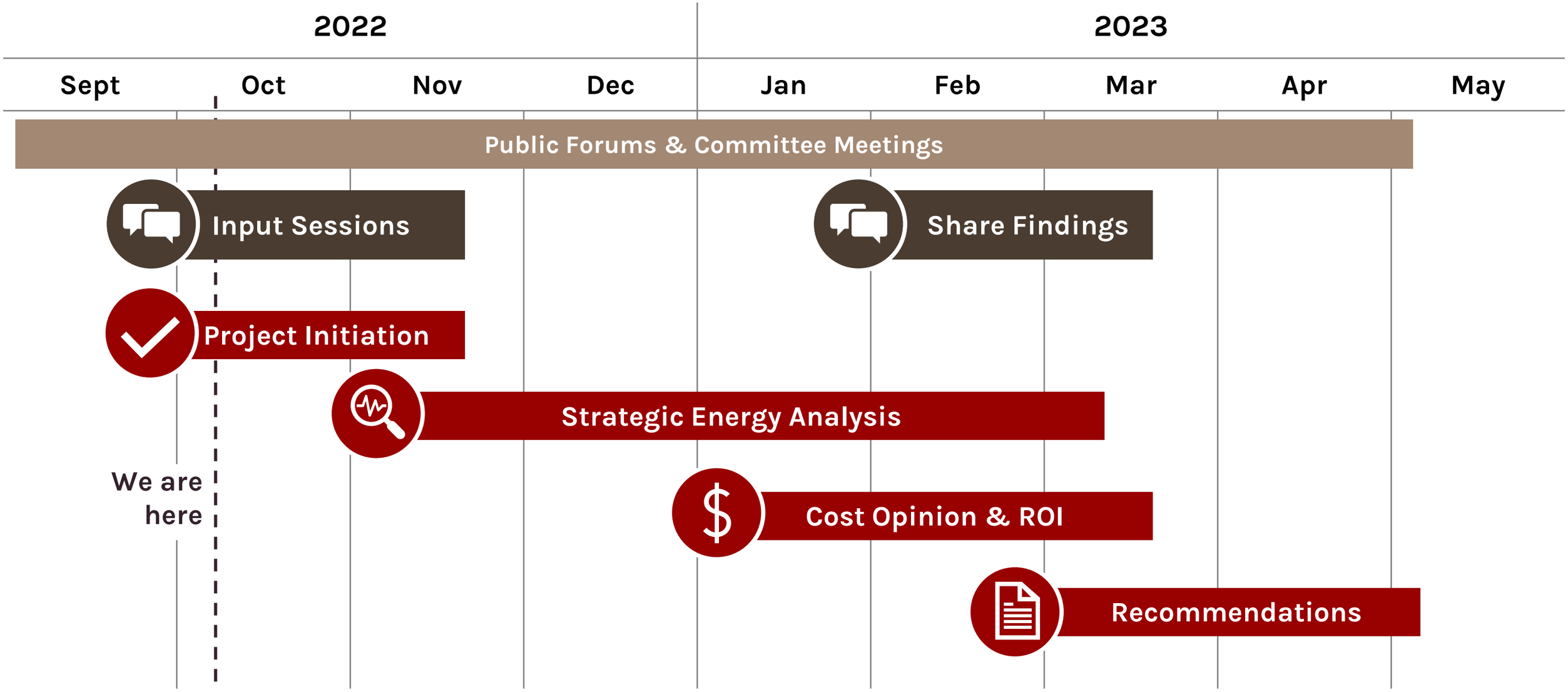
- Recap first round of Public Forum sessions
- Review format of sessions and how sessions changed
- Start to highlight input received thus far

Data & Information

- Highlight work underway and next steps

MITTEE USE ONLY

PROJECT SCHEDULE



PUBLIC FORUMS

Trip #1: Gary, Indianapolis, Kokomo

Date	Campus	Forum #	Event
September 27	**IUN**	**1**	**Public Forum #1 + IUN Campus Tour**
September 28	**IUPUI**	**2**	**Public Forum #2 + IUPUI Campus Tour**
	IUK	**3**	**Public Forum #3 + IUK Campus Tour**

Trip #2: Indianapolis, South Bend

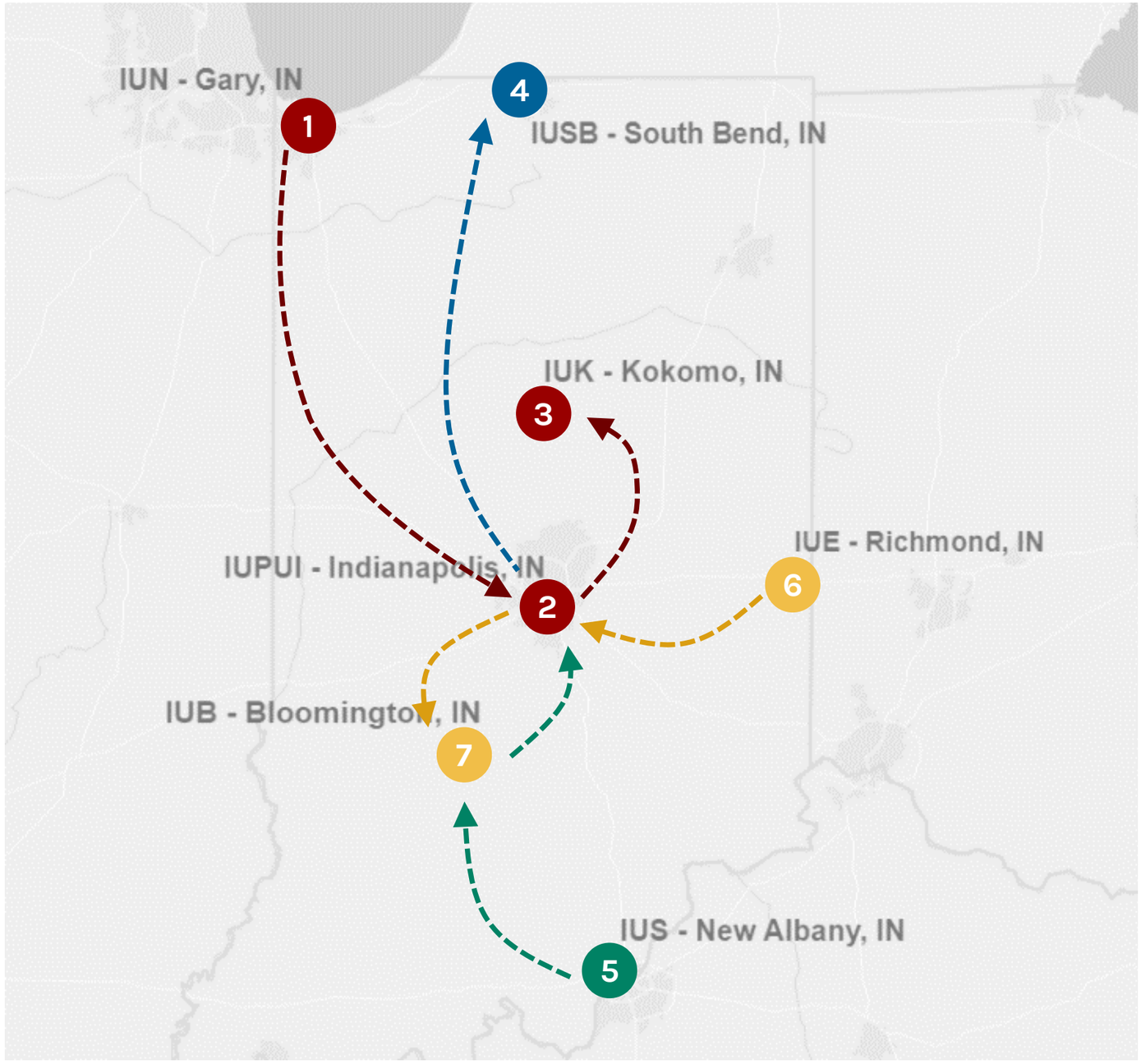
Date	Campus	Forum #	Event
October 11	IUPUI		Committee Meeting
October 12	**IUSB**	**4**	**Public Forum #4 + IUSB Campus Tour**

Trip #3: New Albany, Bloomington, Indianapolis

Date	Campus	Forum #	Event
October 25	**IUS**	**5**	**Public Forum #5 + IUS Campus Tour**
October 26	IUB		IUB Campus Tour
	IUPUI		Committee Meeting

Trip #3: Richmond, Indianapolis, Bloomington

Date	Campus	Forum #	Event
November 15	**IUE**	**6**	**Public Forum #6 + IUE Campus Tour**
	IUPUI		Committee Meeting
November 16	**IUB**	**7**	**Public Forum #7**



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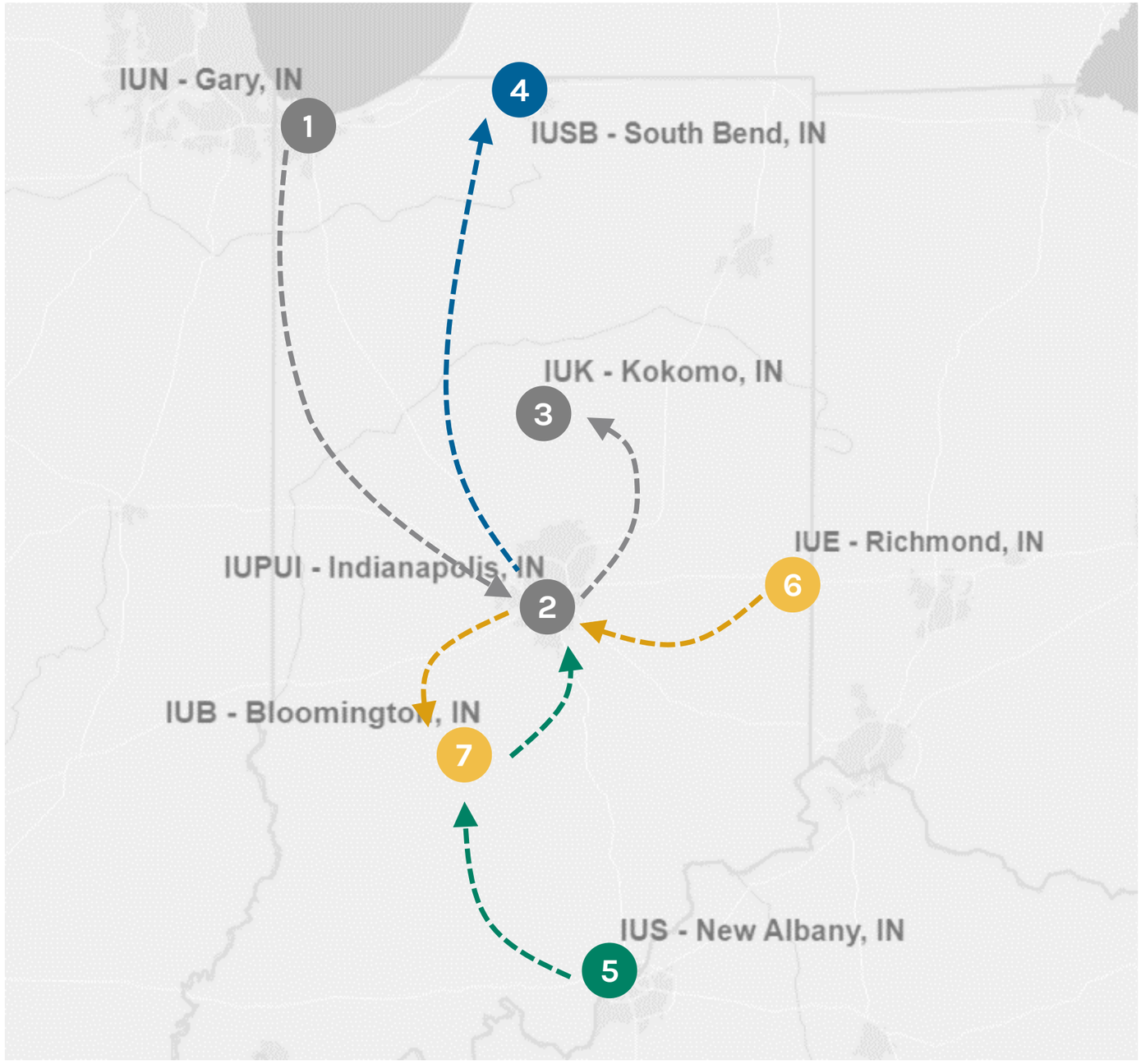

PUBLIC FORUM PURPOSE & OBJECTIVES

SESSION OVERVIEW

SESSION PURPOSE:

Kick-off the Indiana University Climate Action Plan by sharing process and approach and seeking in put to develop a shared direction for the opportunities and goals of the plan.

SESSION OBJECTIVES:

- Introduce Indiana University Climate Action Planning staff & committee and SmithGroup
- Provide overview of project scope, approach, and planning process
- Review initial project goals, previous / current Indiana University initiatives
- Request input on priorities regarding topics such as climate change, energy use, and prioritization
- Engage in activities aimed at framing a future vision for the Indiana University Climate Action Plan

STARS REPORTING

WHAT IS STARS?

"**The Sustainability Tracking, Assessment & Rating System (STARS)** is a transparent, self-reporting framework for colleges and universities to measure their sustainability performance."

Source: About STARS

AN OVERVIEW OF STARS RATING CATEGORIES

Category	Topics
Academics	Curriculum Research
Operations	Air & Climate Buildings Energy Food & Dining Grounds Purchasing Transportation Waste Water
Engagement	Campus Engagement Public Engagement
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Innovation & Leadership	Exemplary Practice Innovation

STARS REPORTING

Indiana University STARS Reporting

IU CAMPUS	RATING	FUTURE RATING
IU Bloomington	Gold	Platinum
IU South Bend	Bronze	Platinum
IUPUI	Gold	Platinum
IU Southeast	Silver	Platinum
IU East	*Not yet reporting*	Platinum
IU Kokomo	*Not yet reporting*	Platinum
IU North	*Not yet reporting*	Platinum

WHAT DO WE MEAN BY CARBON NEUTRALITY?

Indiana University has set a target for **carbon neutrality by 2040.**

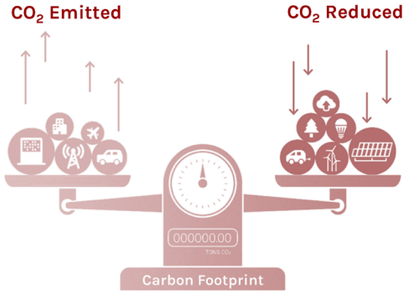
But what does this mean?

	CARBON NEUTRALITY	NET-ZERO EMISSIONS
Definition	Reduces carbon emissions and balances remaining emissions	Pertains to all Greenhouse Gases (GHG)
Emission Types	Scopes 1 & 2 *(Scope 3 is optional)*	Scopes 1, 2, & 3
Typical Application	Institution, company, or product	Global, national, state, community, institution, or company

WHAT WILL BE MEASURING?

Based on historic trends, current state, and future projections, we will be measuring:

- **Energy Use**
- **Energy Use Intensity (EUI)**
- **Greenhouse Gas (GHG) emissions**



UNDERSTANDING GHG EMISSIONS

SCOPE 1 EMISSIONS

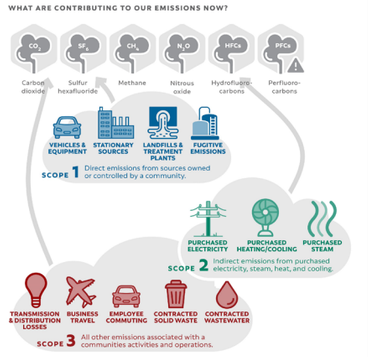
Direct emissions from fuel burned in owned or controlled assets including buildings, vehicles, and equipment.

SCOPE 2 EMISSIONS

Indirect emissions from purchased electricity, steam, heat, and cooling.

SCOPE 3 EMISSIONS

All **other indirect emissions** the result of activities from assets not owned or controlled Indiana University, but that the university indirectly impacts in its value chain.

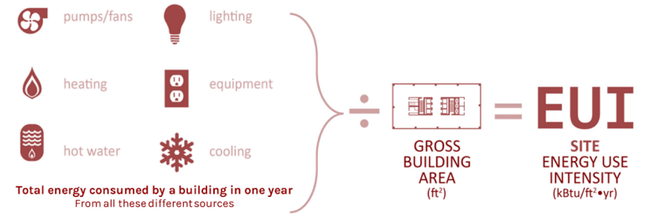


Source: Diagram based on Greenhouse Gases Diagram from EPA

MEASURING ENERGY USE INTENSITY

HOW DO WE CALCULATE EUI?

And why is that important?



Total energy consumed by a building in one year
From all these different sources

Definition adapted from AIA California

ABOUT ENERGY USE INTENSITY (EUI)

Energy use intensity (EUI) is an indicator of the energy efficiency of a building's **design** and **operations**.

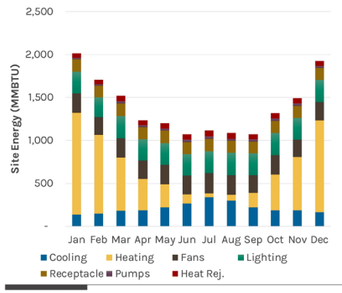
Definition adapted from AIA California

EUI CAN BE USED TO:

- **Set a target** for energy performance of new or retrofitted buildings
- **Benchmark building performance** against others of the same building type
- **Reporting & Tracking compliance** against energy code requirements

ENERGY MODELING

Energy usage before reduction strategies



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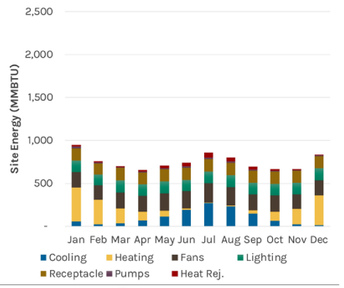
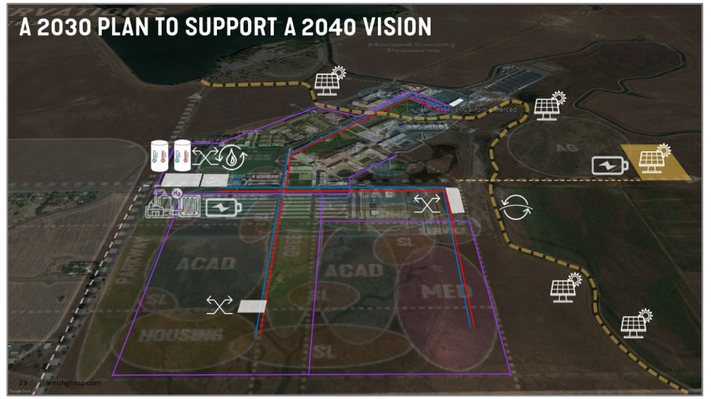


A 2030 PLAN TO SUPPORT A 2040 VISION



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Source: About STARS

Helpful context for project

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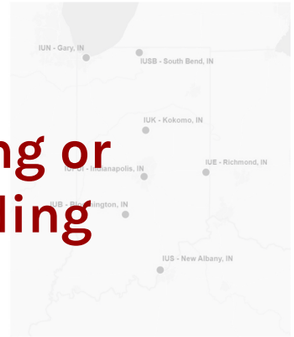

Confusing or misleading

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Helps define scope of IU CAP

Confusing

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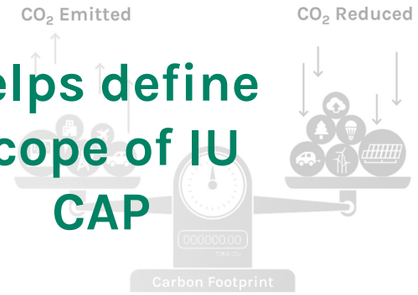

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Too much text

Difficult to read

Source: Diagram based on Greenhouse Gases Diagram from EPA

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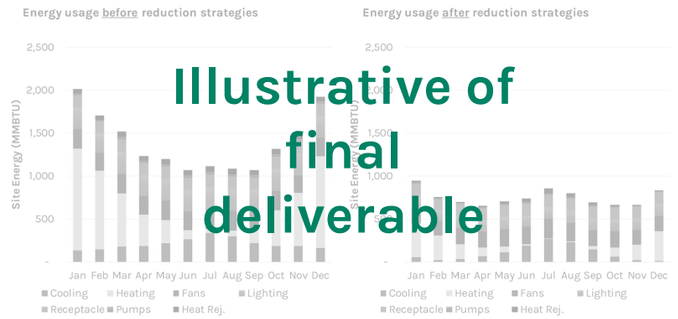

Illustrative of final deliverable

A 2030 PLAN TO SUPPORT A 2040 VISION

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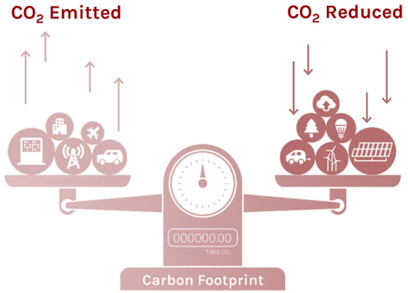

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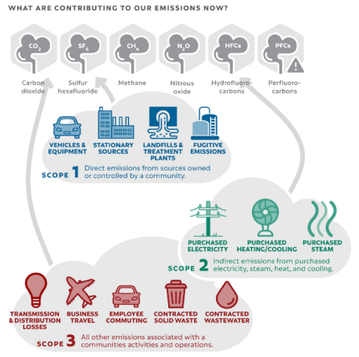

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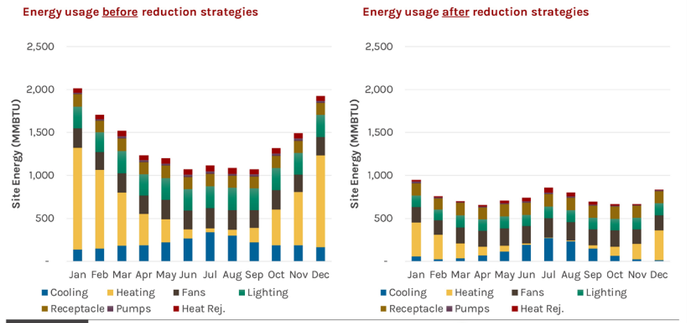

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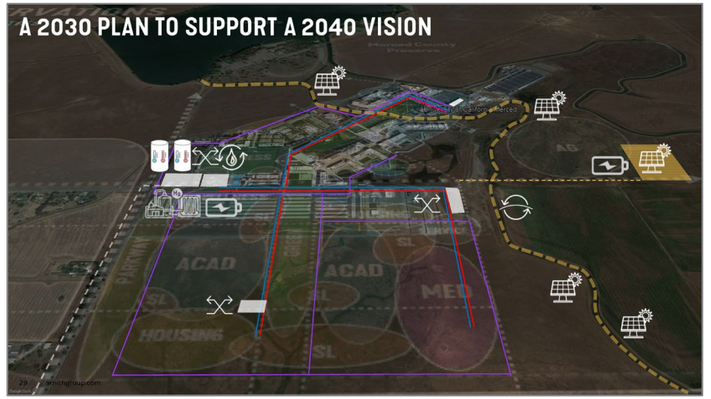
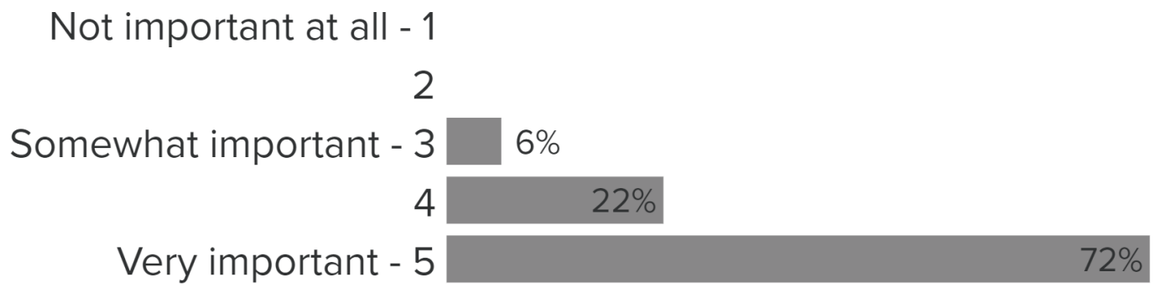


SURVEY QUESTIONS

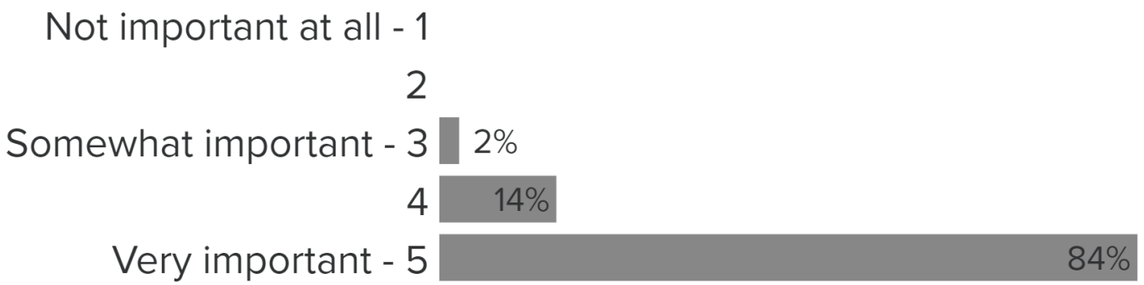
COMPARING INPUT

On a scale of 1-5, how important do you think the topic of climate change is to our present and future?

IUN – GARY



IUPUI – INDIANAPOLIS



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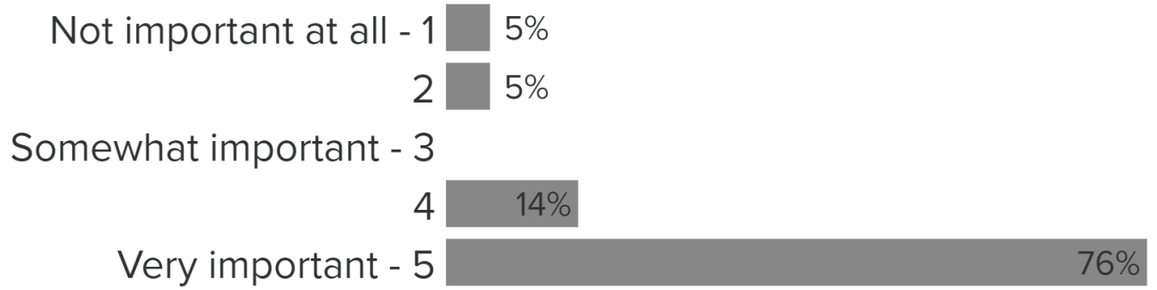
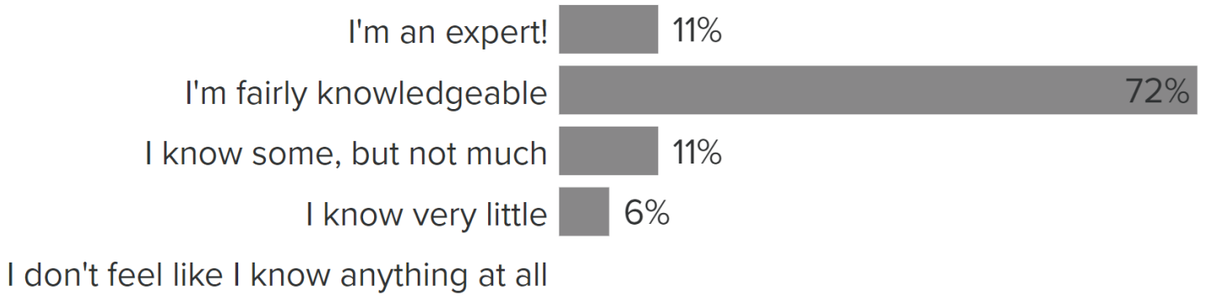


SURVEY QUESTIONS

COMPARING INPUT

How comfortable are you with your knowledge around the topic of climate change?

IUN - GARY



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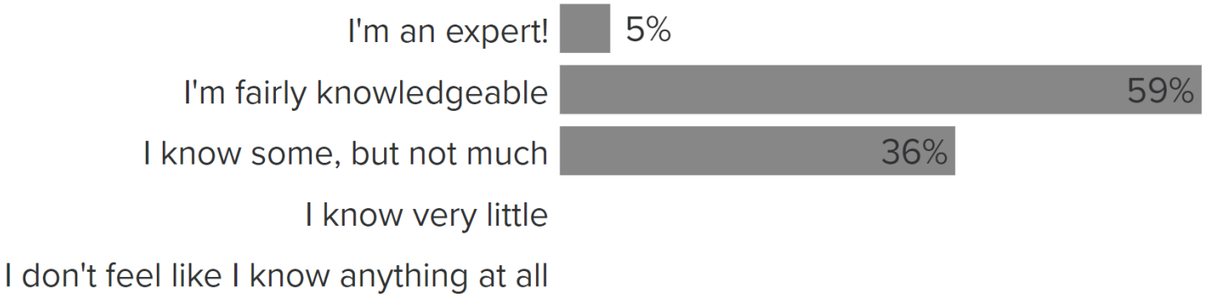


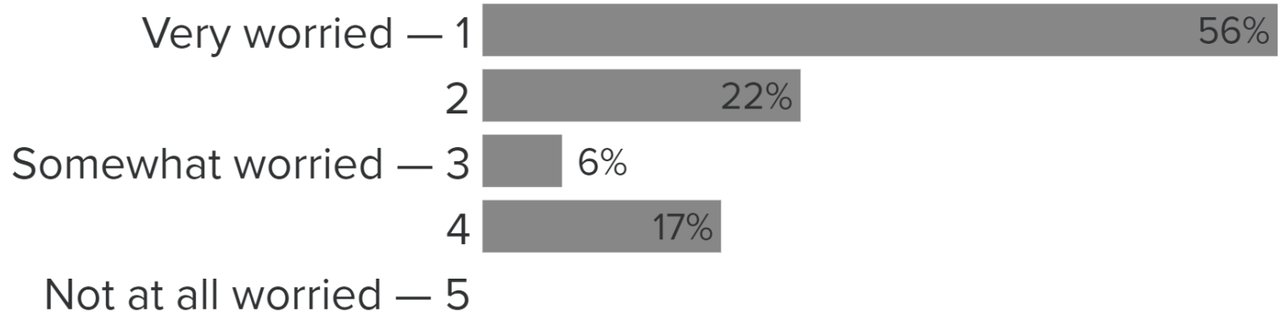
IUK - KOKOMO

SURVEY QUESTIONS

COMPARING INPUT

On a scale of 1-5, how worried you are about your future with regard to climate change?

IUN - GARY



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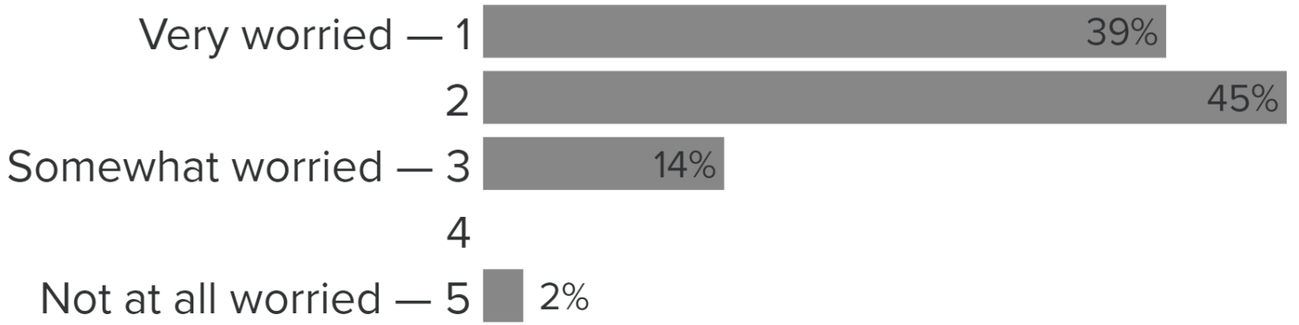

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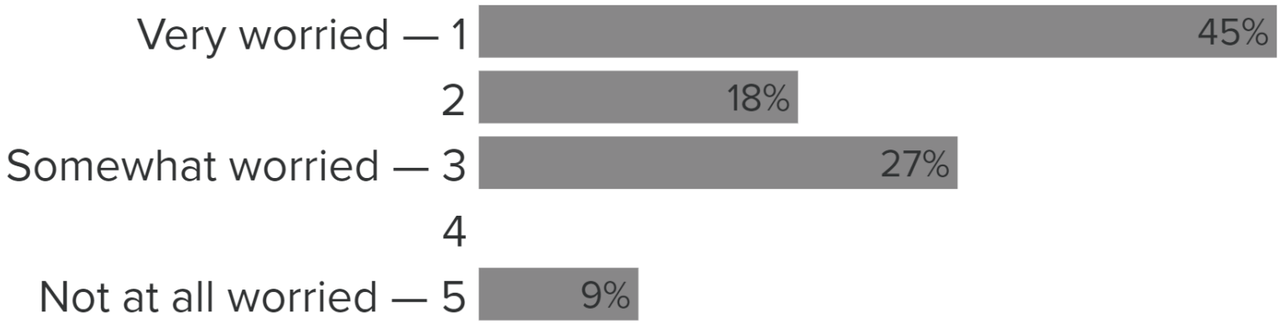
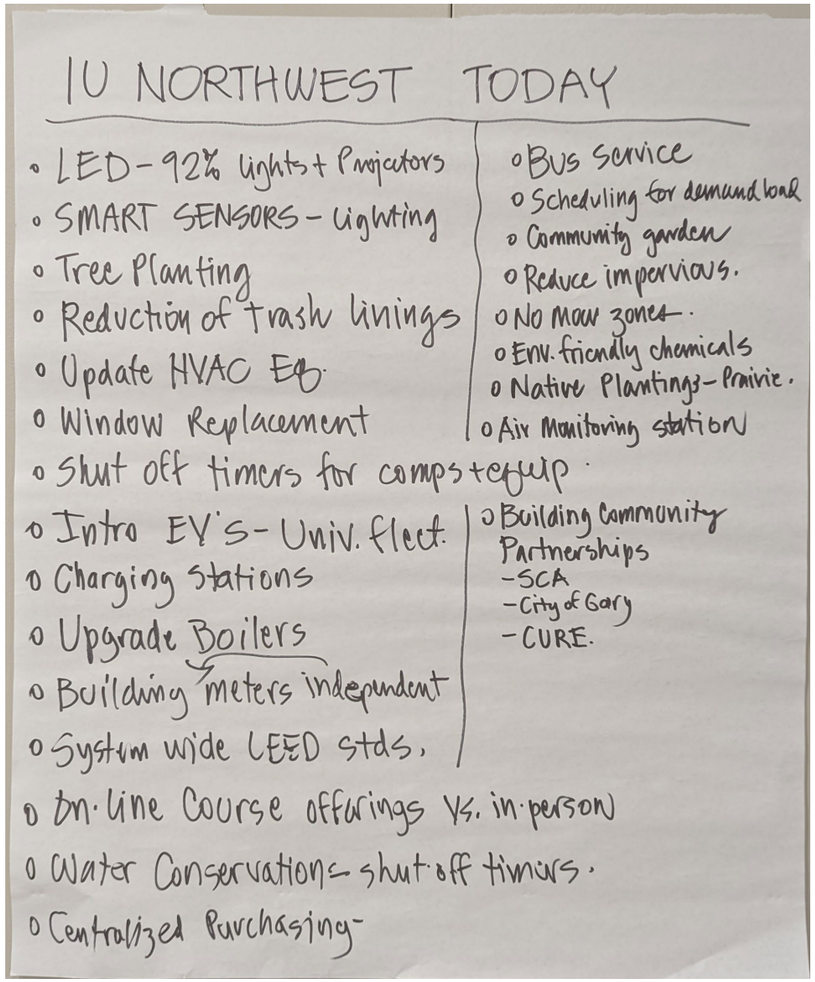
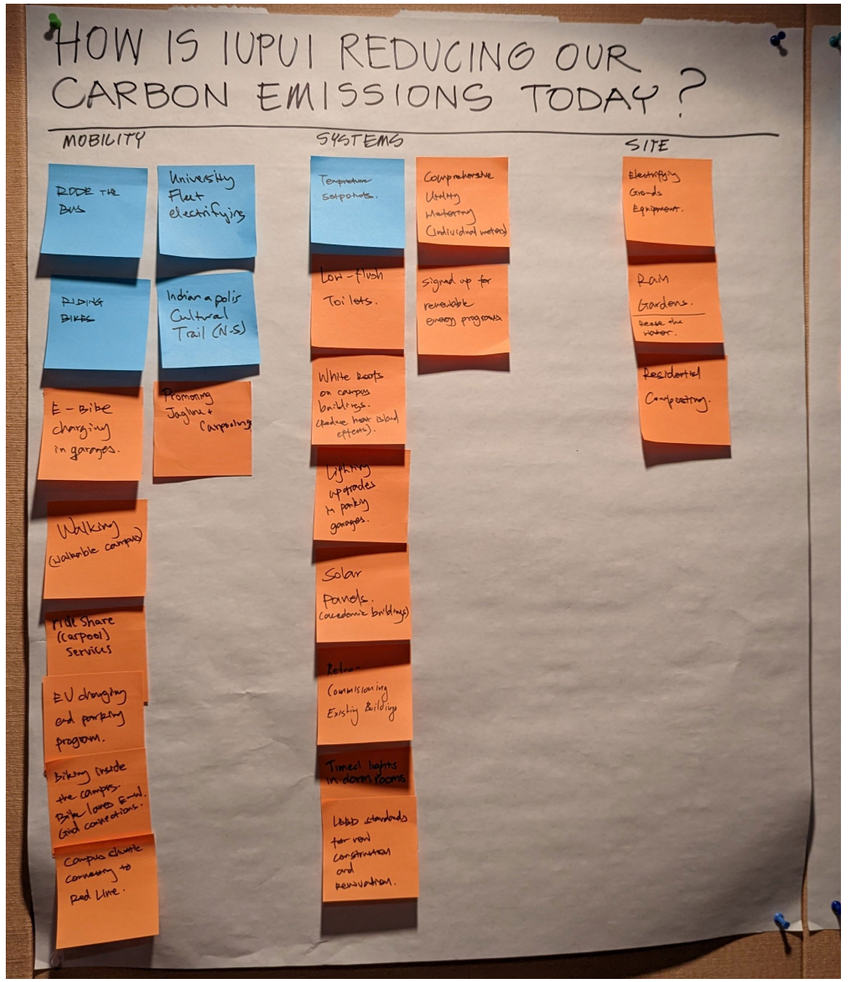
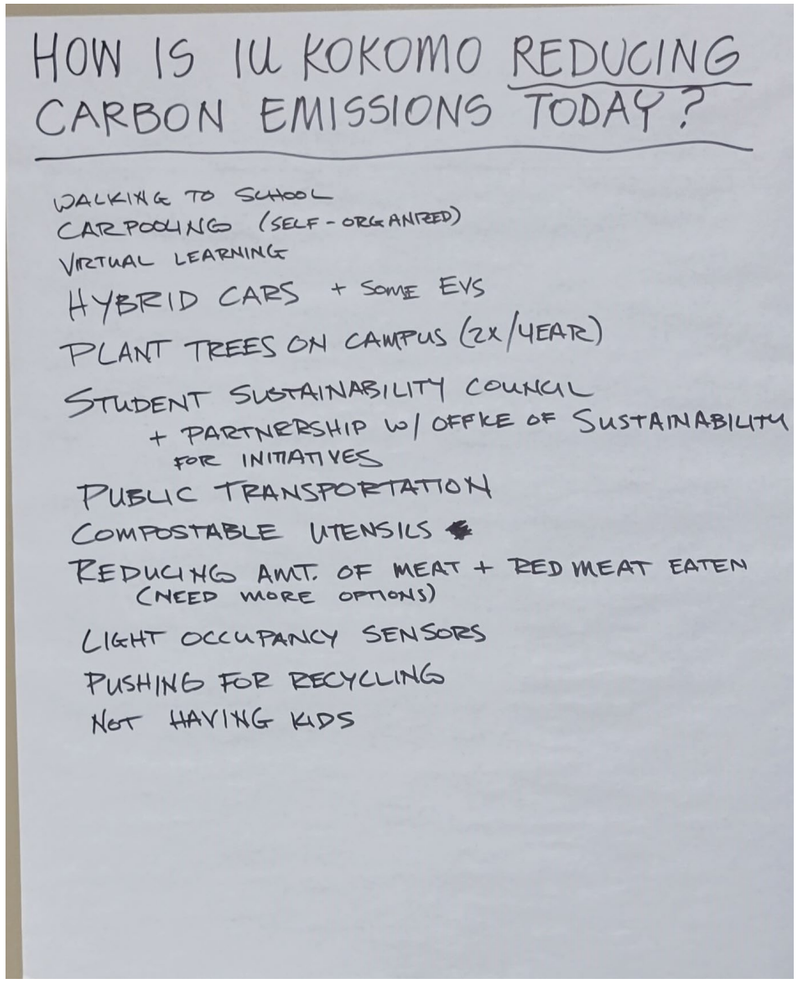


WHAT ARE YOU DOING TODAY?

PUBLIC FORUM INPUT QUESTIONS



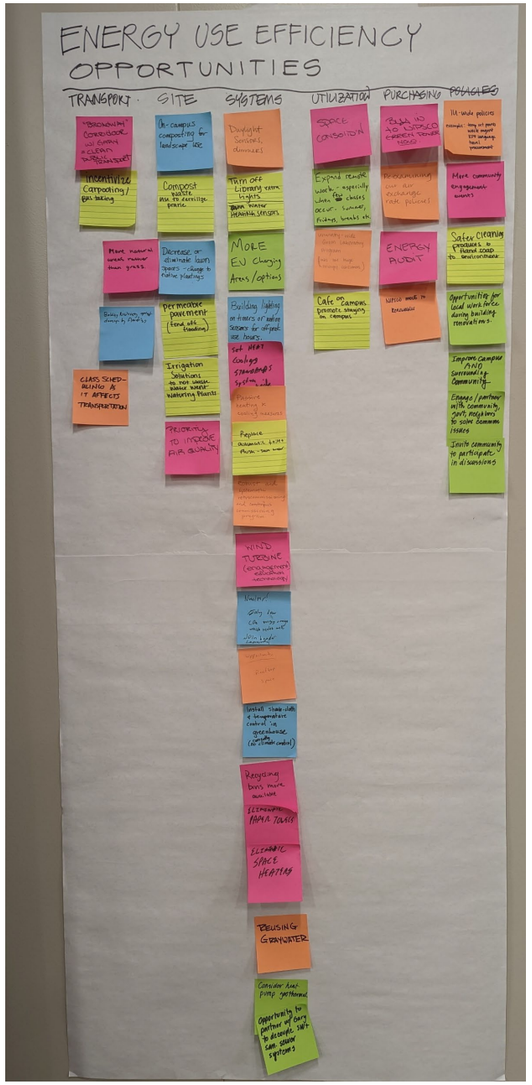




IUN - GARY | **IUPUI - INDIANAPOLIS** | **IUK - KOKOMO**

WHAT ARE SOME OPPORTUNITIES TO REDUCE CARBON EMISSIONS?

PUBLIC FORUM INPUT QUESTIONS



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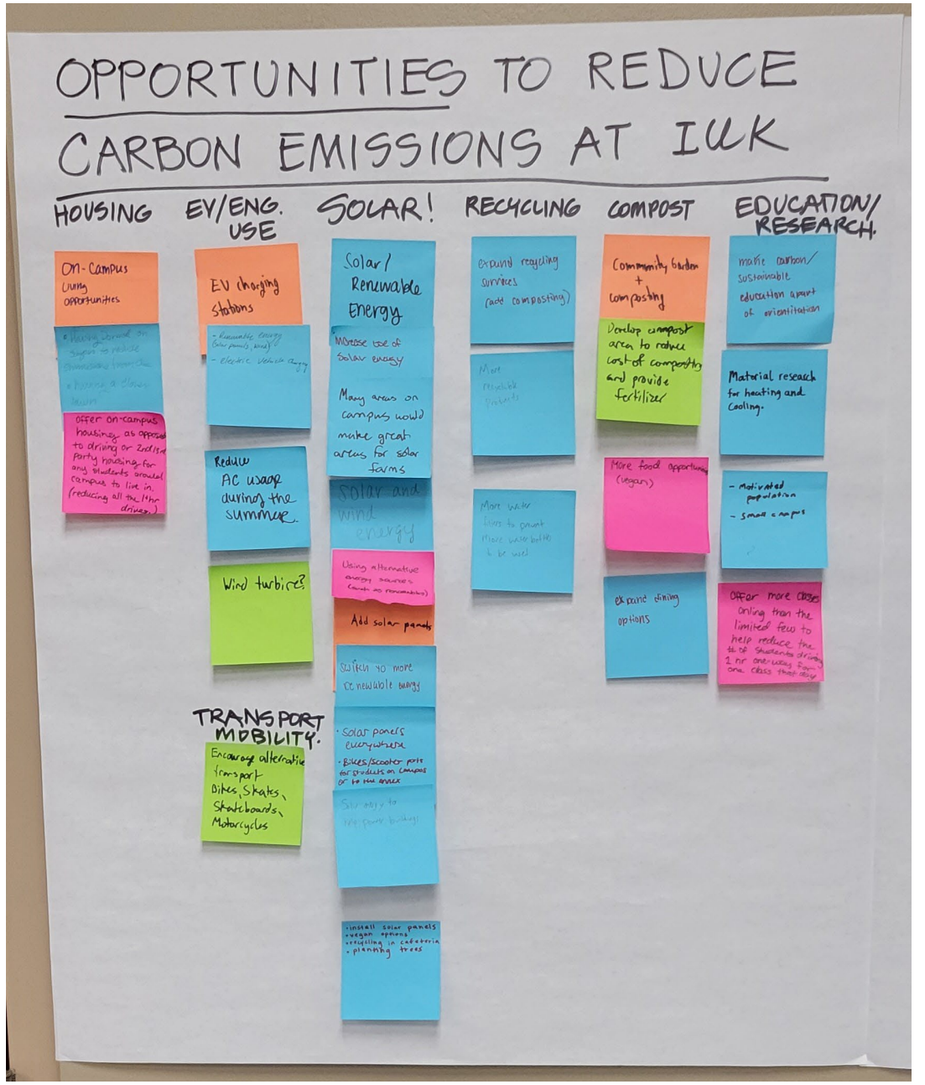
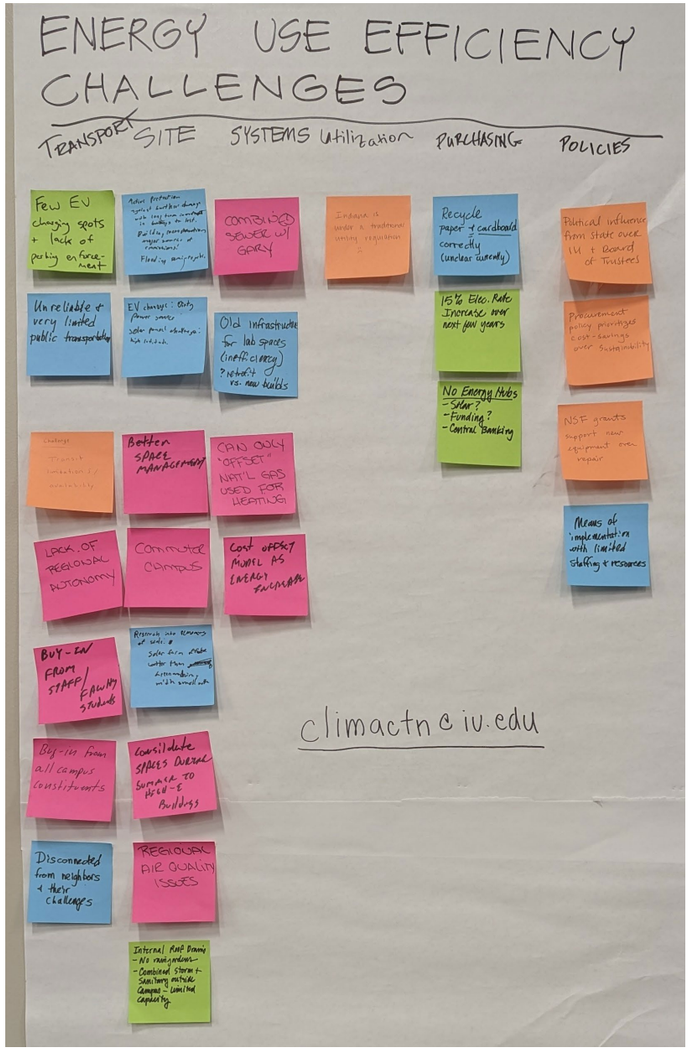


IUK – KOKOMO

WHAT ARE SOME CHALLENGES TO REDUCING CARBON EMISSIONS?

PUBLIC FORUM INPUT QUESTIONS



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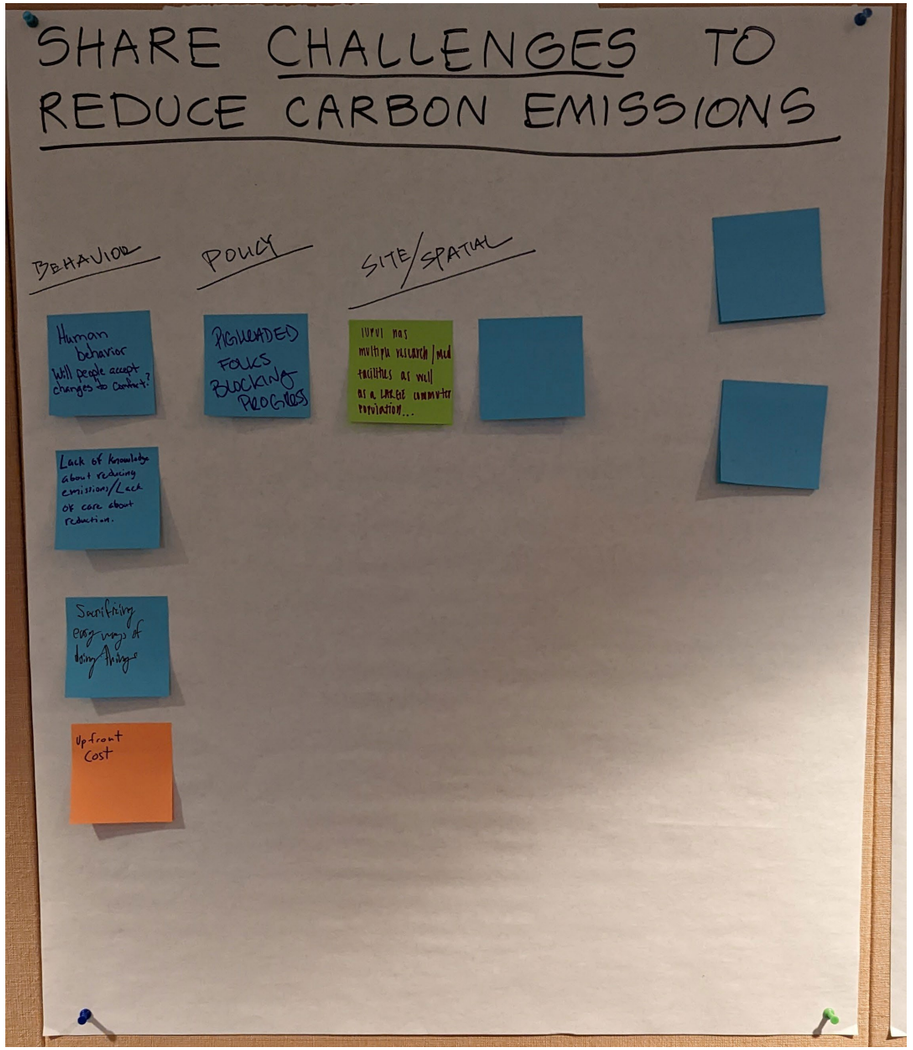

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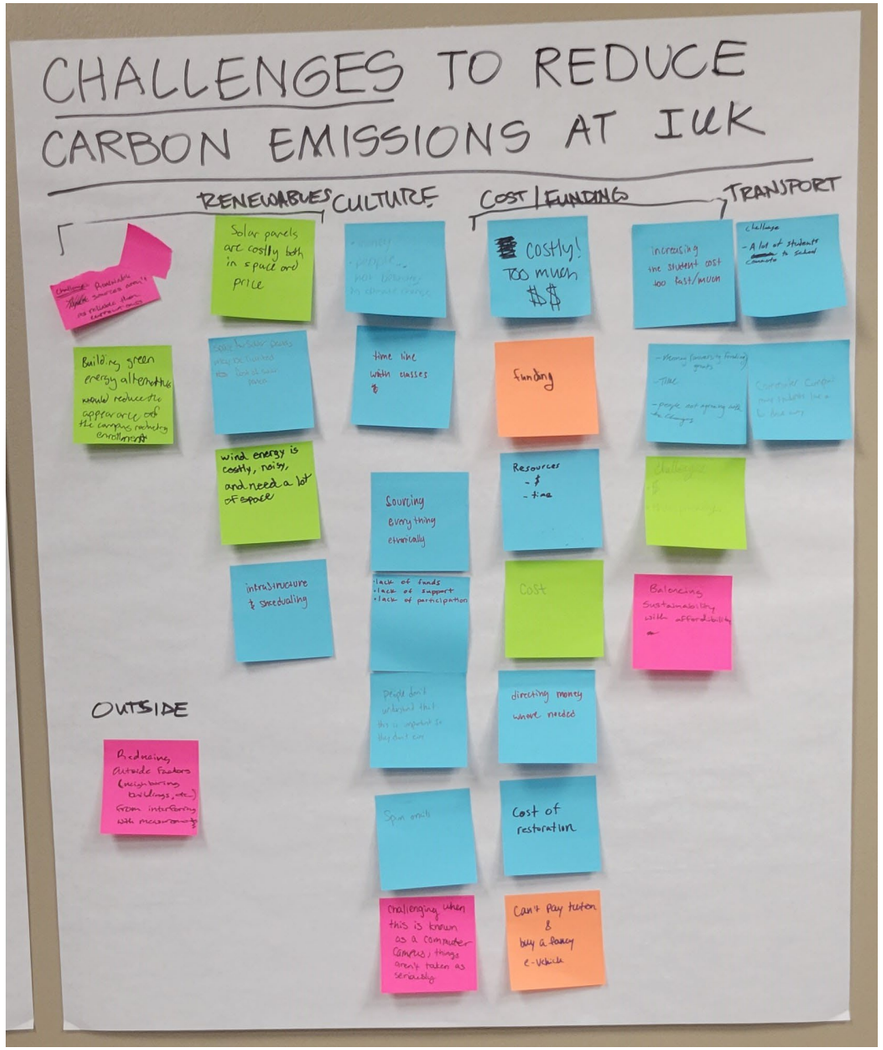


IUK – KOKOMO

OPPORTUNITIES

COMMON THEMES

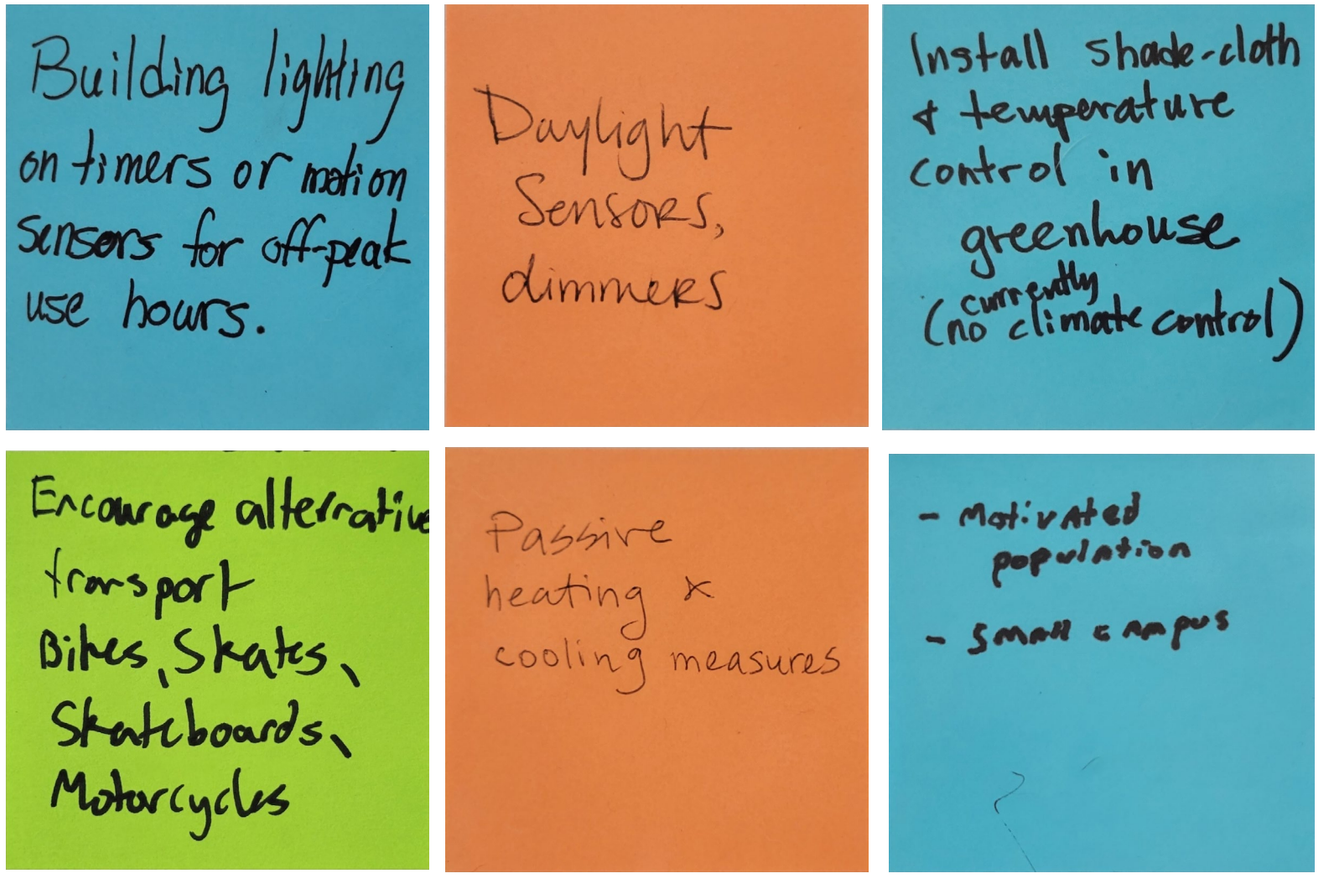
Consistent focus on renewable energy generation

- Solar
- Wind
- Heat pumps

OPPORTUNITIES

COMMON THEMES

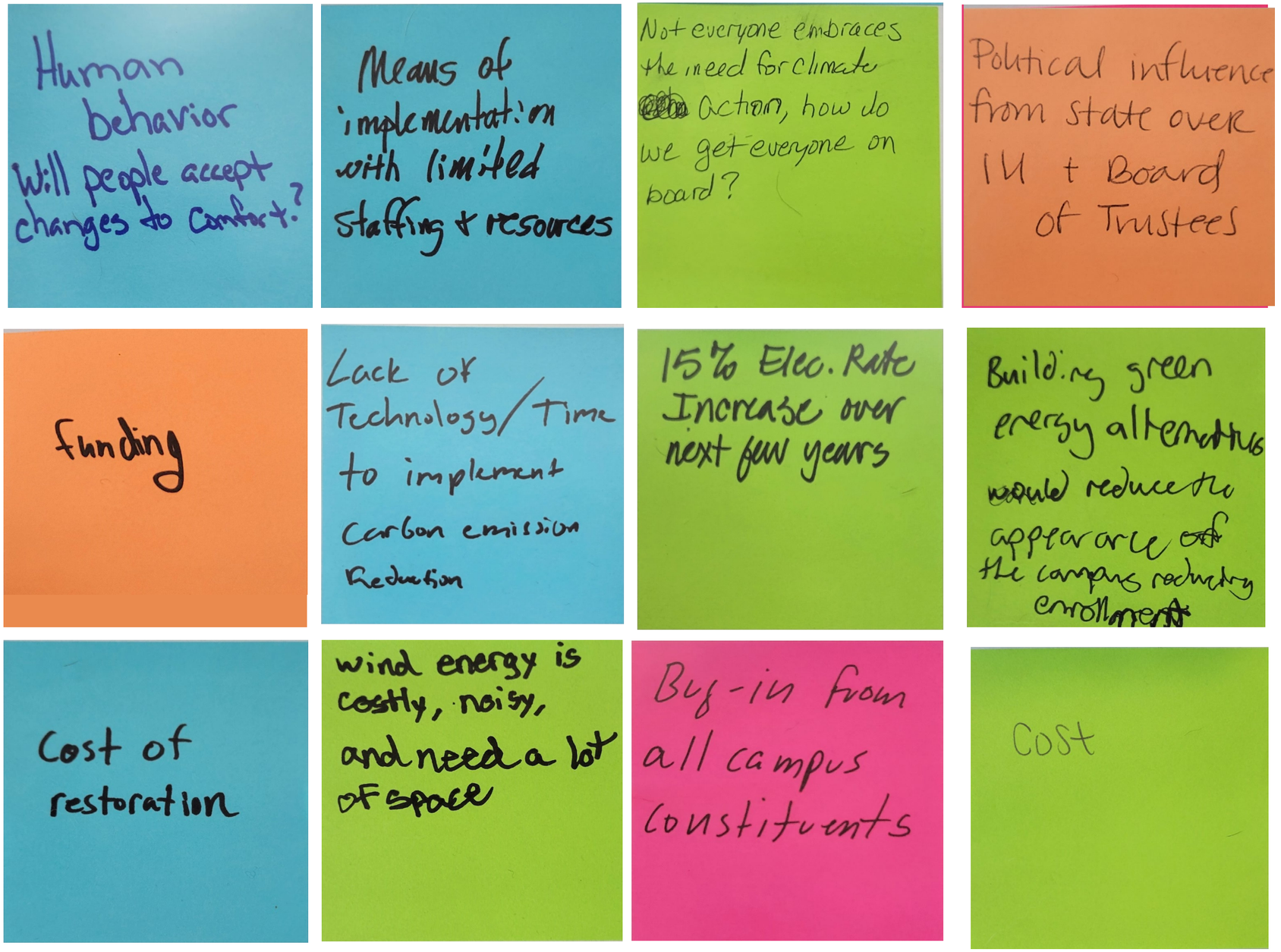
- Renewable energy generation
- Mobility & transportation
- Site, buildings & facilities
- Systems
- Operations & utilization
- Purchasing
- Policies
- Social (people-based solutions, education, research, community, partnerships)
- Smart metering & fixtures
- Passive energy efficiency & design
- Food & waste



CHALLENGES

COMMON THEMES

- Costs & Funding
- Capacity (staff, time)
- Mobility & Transportation
- Site, buildings & facilities
- Systems
- Operations & utilization
- Purchasing
- Policies
- Social (education, engagement, behavior, culture, perception)
- Technology
- Outside factors



COMMITTEE GOAL AND GUIDING PRINCIPLES

PURPOSE OF THE COMMITTEE

Develop recommendations for short- and long-term opportunities to **reduce greenhouse gas emissions** on all IU campuses

GUIDING PRINCIPLES

- Complete, comprehensive and scientifically sound
- Immediate implementation where possible
- Financial resources required
- Funding sources and savings identified
- Broad input from students, faculty and staff on all campuses
- Benchmarks, dashboards and transparency of process and progress
- **Carbon neutrality by 2040**

QUESTIONS

AUDIENCE Q&A

- Will the IU Board of Trustees have to approve the climate action plan? What happens if they don't?
- What is the plan after April 2023? Will you continue to work on other areas of emissions?
- IUPUI has around a 60% commuter population, what are your ideas to account for the carbon emissions from student transportation to campus?
- If only a small group wanted to make a climate action plan where is a good place to start/what topics or fields would they be the most effective?
- How do you join the sustainability council?
- What are some of your ideas on increasing student participation in these plans? Other than open forums and surveys?
- How will you address sustainability and efficiency when it comes to the medical buildings in campus?
- Is the university willing to actually invest in the solutions needed for carbon neutrality?
- Will this process yield a climate action plan or a list of recommendations?
- How much money does IUPUI allocate to things such as sustainability or climate action in general?
- How are decisions being made regarding return on investment?
- Are you looking at the work that other institutions are doing, and how is that informing this plan?
- Could a future change in administration shift attention away from the IU CAP (and prevent it from being implemented)?
- Are you currently engaging with surrounding communities? Do you plan to as part of this process?
- Will you be focusing on lasting benefits to surrounding communities?
- Campuses have older and aging buildings – will you be focusing more on adaptive reuse of existing buildings or construction of new buildings?

QUESTIONS

AUDIENCE Q&A

- Will the IU Board of Trustees have to approve the climate action plan? What happens if they don't?
- **What is the plan after April 2023? Will you continue to work on other areas of emissions?**
- IUPUI has around a 60% commuter population, what are your ideas to account for the carbon emissions from student transportation to campus?
- If only a small group wanted to make a climate action plan where is a good place to start/what topics or fields would they be the most effective?
- How do you join the sustainability council?
- **What are some of your ideas on increasing student participation in these plans? Other than open forums and surveys?**
- How will you address sustainability and efficiency when it comes to the medical buildings in campus?
- Is the university willing to actually invest in the solutions needed for carbon neutrality?
- **Will this process yield a climate action plan or a list of recommendations?**
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DATA AND INFORMATION REQUESTS

- Understanding what we have
- Identifying data and resources needed to complete the IU CAP

Campus (short)	r Cost (%)	Initiatives	Future System Upgrades	Key Challenges	Opportunities
IUSB		• Administration Building Renovations (multiple phases) • Vera Z. Dwyer Hall Renovation (formerly Riverside Hall) • Northside Hall renovations • Roof Replacements/Repairs • Parkside, Administration, Weikamp • Exterior Stone Repairs/Envelope • Weikamp, University Center • Mechanical Systems Upgrades • Schurz Library, Administration, Northside	• Mechanical Systems Replacement (Northside) • Auditorium Theater Lighting Upgrades (Northside) • Hardscape Upgrades (University Center) • Entry Door Replacement (Weikamp) • Phase 1 Campus Walkway Lighting • Parkside Hall Renovation		
IUN		**Energy Reduction Projects** • Completed ~17 projects with impact on campus energy consumption from October 2019 to date • 90% of interior campus lights converted to LED (Dunes, Hawthorn Hall) • Outside/exterior lights on campus are 100% LED • Impact of demand load of system and peak period billing	**Major Energy Projects (2020 - 2023)** • Marram Hall window replacements • Hawthorn Hall natural gas conversion and electrical renovation • Raintree Hall –HVAC system replacement • Facilities Services Electrical and HVAC upgrades (2022-23) • Facilities Services Annex HVAC upgrades (2022-23) • Tamarack Green Space • Internal/external LED replacement program ongoing, 90% complete • Hawthorn Hall window seal replacement • Add sidewalk lighting to south 35th Avenue • Savannah hot water heater relocation • Raintree Hall classroom and corridor renovation • Marram Hall classroom/corridor/lab renovation • Marram Hall boiler replacement • Various other projects	• Winter weather tough on equipment (Limit exposures resulting in frozen/broken coils andwater lines) • Little Calumet River flood of 2008 led todemolition of Tamarack Hall • Degraded air due to proximity of state highway • Availability of new staff, turnover of workforce, and loss of experience • Budget restrictions or reductions related tostudent retention • Space planning and space utilization • Sewer back up –Gary Sanitation	• Standardization of intra-campus processes • Enhance the effectiveness of our staff • Improved energy reduction • Shared knowledge base between IUcampuses • Provide responsible stewardship • Commit to sustainable practices (hand driersvs. paper towels) • City of Gary conversion of buses to naturalgas –green transportation solutions forstudents • Planting trees to help manage stormwaterand improve infiltration and offset carbonemissions • Opportunity to become a charging hub undercity initiative • Converting all campus lighting to 100% LED
IUK		**Projects & Initiatives (2015 - Present)** • Kokomo Main Building -Renovation (2016) • Library Renovation (2017) • Student Activities and Events Center (2021) • New Campus Greenhouse (2021) **System Upgrades** • Kelley Student Center/Library/Art Gallery AHU Replacement • Multiple Buildings: Replacing pumps, frequency drives and motors • Main Building: Replaced Roof with TPO roofing and added insulation • Fine Arts Building: Replaced all single pane windows with double paneand insulated storefront glass system • Student Activities and Events Center –Air Handlers and Systems Examples • Kokomo East Building –Bank of 6, small fans replaced single, highhorsepower fan. Frequency drives now control the need and can bestaged for operation and increases efficiency as well as mechanical redundancy. • Coordinated recycling program and reduced water landscape management program • Water absorbing beads reduce watering demand by 60% for flowers and hanging baskets	• Window replacement in portions of East Building • KSC/Library Air Handling Units (2) • Fine Arts Building Roof Top Heating and Cooling Units • Hunt Hall Roof -White TPO Roofing • Hunt Hall/Balance of Main Building -Upgrade to DDC controls • Upgrade of campus HVAC Controls to new Siemens system with more control options to improve efficiency.		