

# Fresno State Results Summary

## Human Behavior Energy Audit<sup>SM</sup>



*Excuse the mess!*

**Victor E. is  
working like  
a bulldog**

# Topics of Discussion

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**Audit Overview**

**Method**

**Results**

- **Focus group results**
- **Web-based survey results**

**Findings & Recommendations**

**Questions**

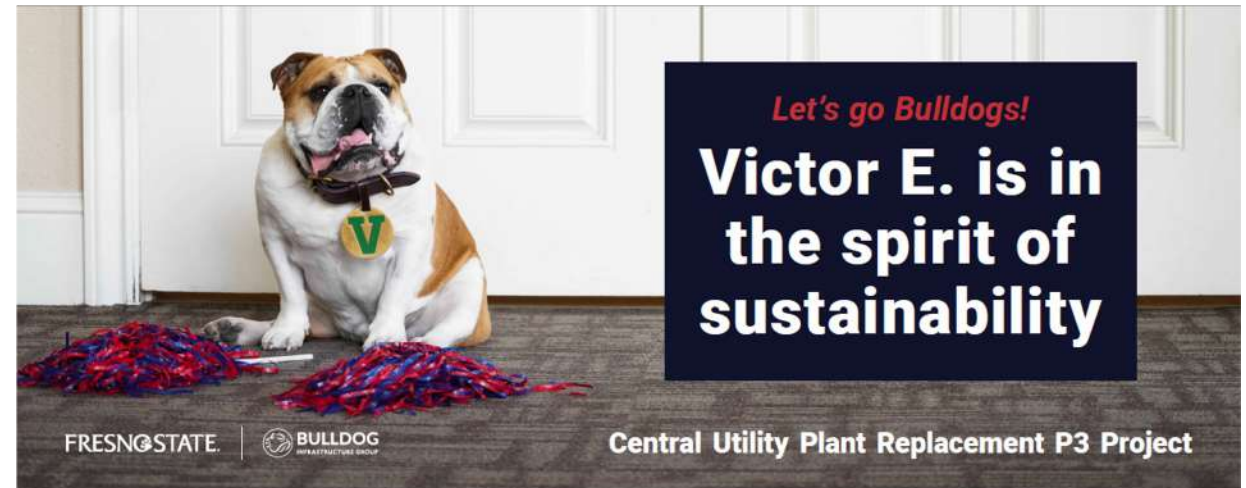


## Exploring the “People Side” of a P3 Project

The proprietary Human Behavior Energy Audit<sup>SM</sup> (HBEA) is the first step to identifying and analyzing communication and behavior-related opportunities within a P3 Project. By leveraging the project, these opportunities empower Fresno State to guide and even augment energy savings while creating or enhancing a culture of conservation.

The Human Behavior Energy Audit<sup>SM</sup>:

- Identifies and assesses current levels of Fresno State faculty, staff, & student energy factors
- Establishes a baseline of current factors with regards to energy use on campus
- Uses various research methods to identify specific factors that have a significant impact on the environment and campus energy costs

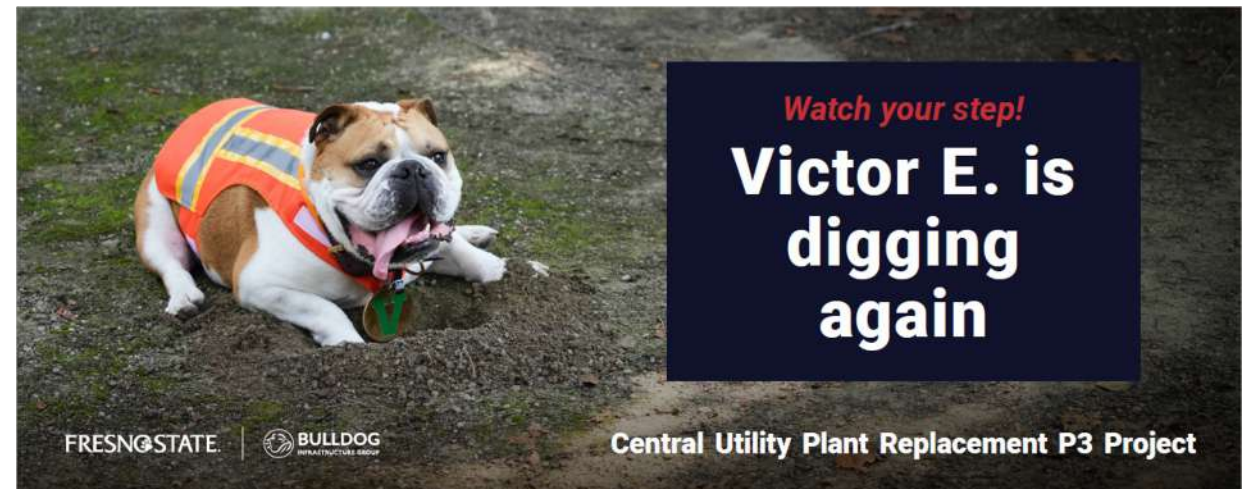


## Multiple Data Collection Methods

The HBEA uses multiple methods to collect and compile data focused on attitudes, knowledge, behaviors, social norms, perceptions of control and other characteristics on Fresno State energy consumption, conservation, programs, and other energy-related criteria.

Data collection methods include:

- Archival data about Fresno State
- Conversations with “key” and/or interested faculty, staff, & students
- Focus groups of similar or “like” energy consumers
- Web-based survey sent to all campus members



# Focus Group Overview

Department heads were asked to send up to 10 individuals to a focus group room at a specific time.

These individuals were informed that their participation was voluntary, and all comments would be aggregated so that no individual could be linked to any comment.

The Focus Group session lasted less than one hour, and was divided into two parts, a written worksheet and a 3-question verbal activity. All participants were given a pen to keep.

After the last verbal question, individuals were then debriefed and thanked for their participation. Any questions were addressed to the best of the moderator's ability.



Focus Group Structured Worksheet

	Internal Control (under your personal control)		External Control (out of your personal control)	
	Barriers to Reducing Usage	Possible Solutions	Barriers to Reducing Usage	Possible Solutions
Room or Office Cooling				
Room or Office Heating				
Lighting				
Water Usage				
Computers and All Electronics				
Appliances				



# Focus Group Analysis

*1-hour group sessions with three verbal questions and worksheet*

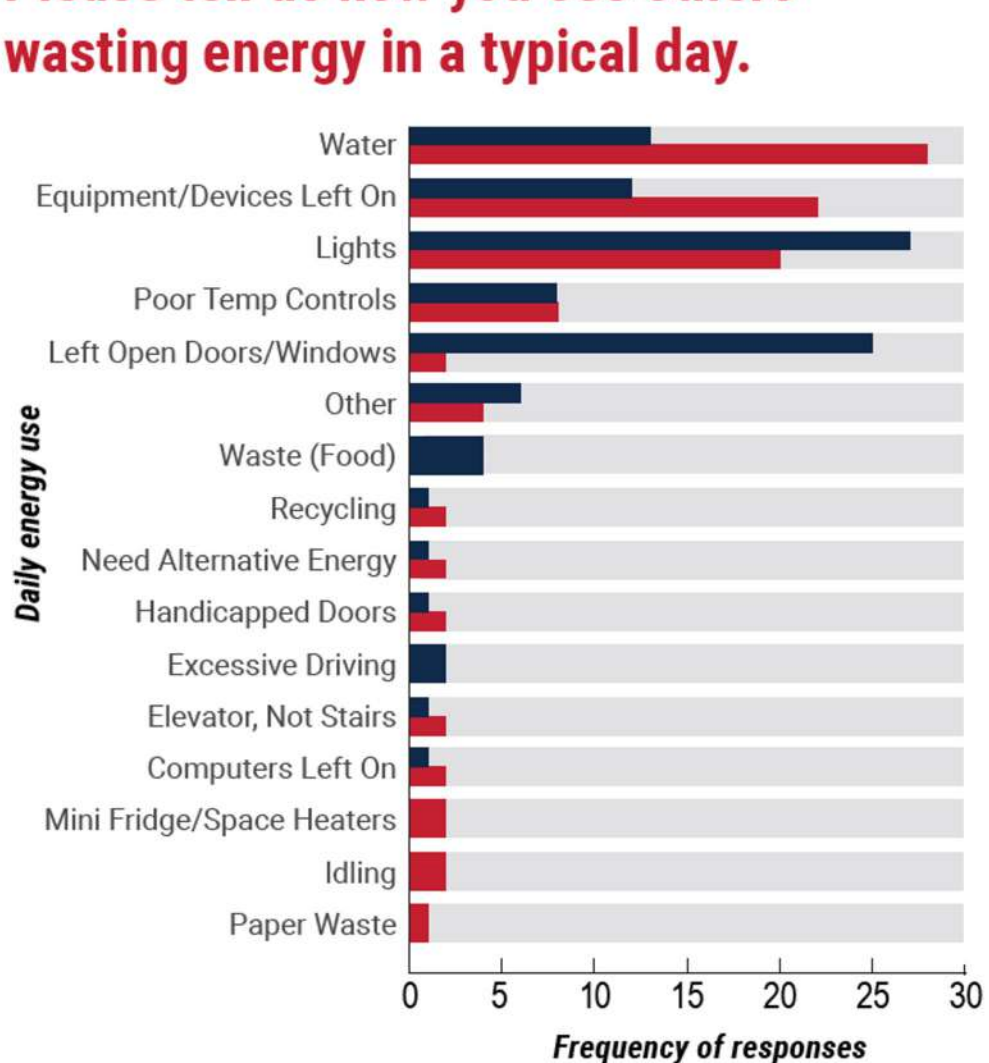
*Conducted on-site from October 18-22, 2021*

 Faculty/Staff  Students

## Demographics



## Please tell us how you see others wasting energy in a typical day.



■ Faculty/Staff
 ■ Students

### Faculty/Staff

1. Lights
2. Windows
3. Water
4. Equipment
5. Poor temp controls

### Students

1. Water
2. Equipment
3. Lights
4. Poor temp controls
5. Food Waste



## How do you use energy in a typical day?

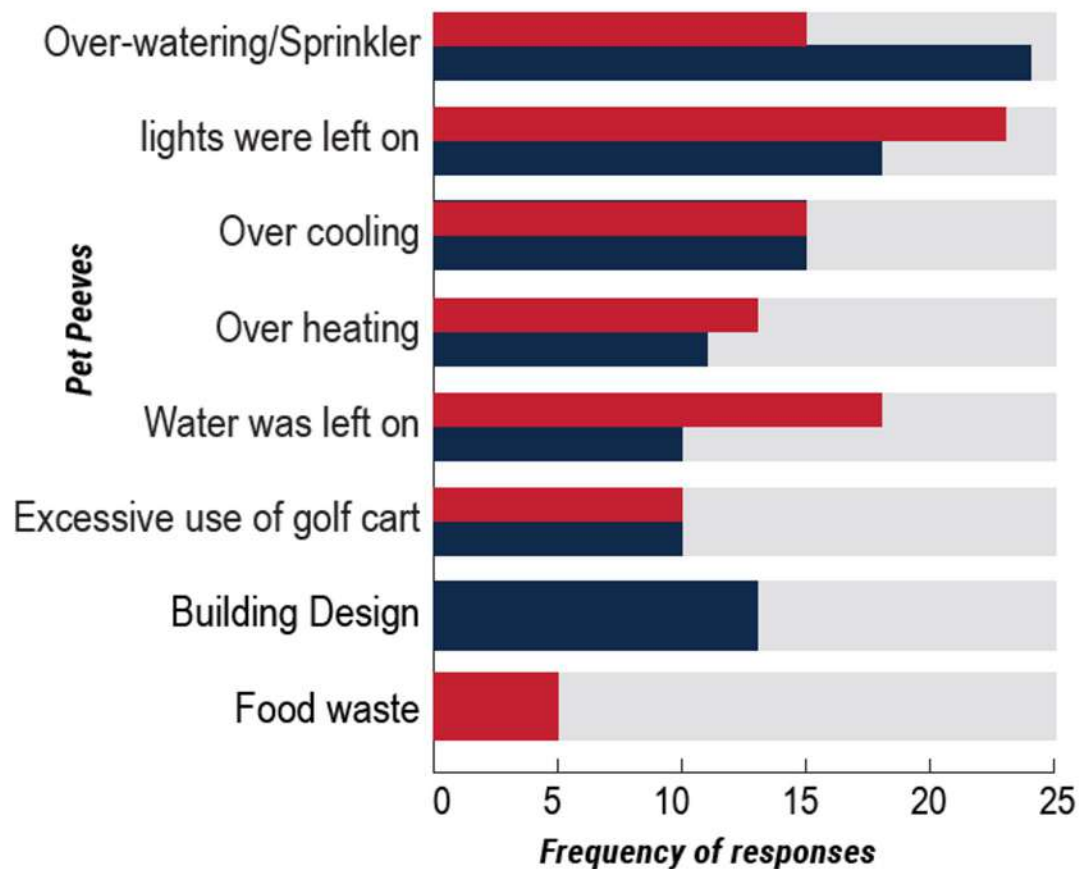
*Larger items were reported more often than smaller items.*





## What is your "Pet Peeve" Regarding Campus Energy Waste?

Faculty/Staff   Students



**FRESNO STATE.**

Discovery. Diversity. Distinction.



# Survey Analysis

**2021**

*Students* Web Survey n = 1525

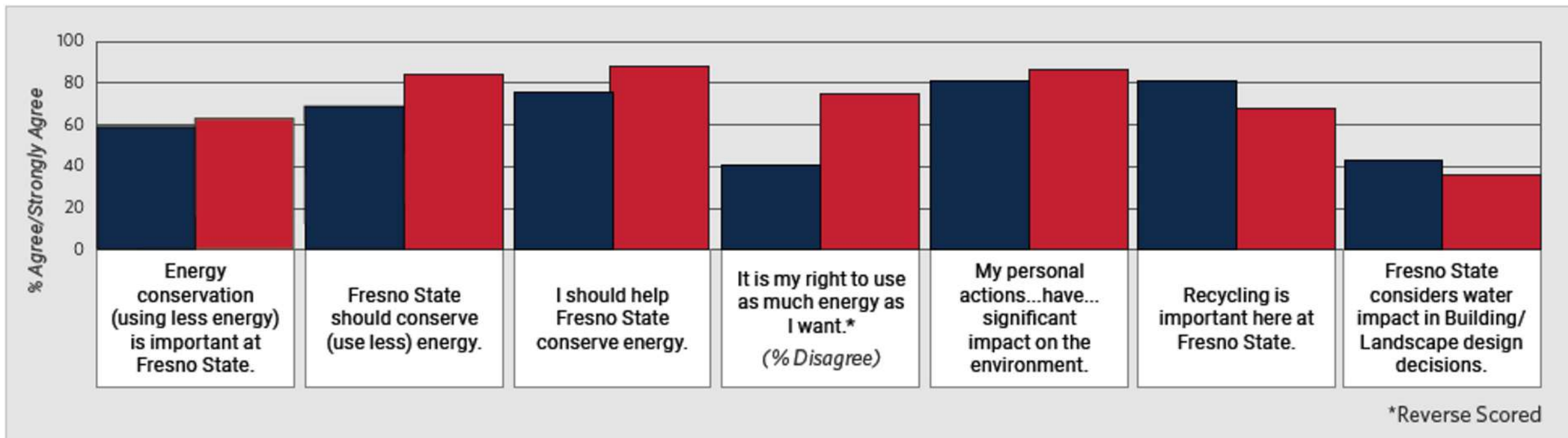


*Faculty/Staff* Web Survey n = 894

MoE  
Margin of Error

# ATTITUDES











Students
  Faculty/Staff





# BEHAVIORS

■ Students
 ■ Faculty/Staff

<p>I turn off the water faucet when I am finished.</p> 	<p>When I am finished using a computer, I turn it off.</p> 	<p>When I am finished using a computer, I turn the monitor/display off.</p> 
<p>I close my window blinds/shades when the sun coming in feels too hot.</p> 	<p>When I leave my unoccupied workspace, I turn off my fan.</p> 	<p>When I leave unoccupied areas, I turn off the light(s).</p> 
<p>When I leave unoccupied areas, I turn off the light(s).</p> 	<p>When I am finished using a printer, I turn it off.</p> 	<p>I open exterior doors/windows to compensate for excessively hot/cold rooms.*</p>  <p>I use a personal space heater to help control the temperature in my workspace.*</p> 

\*Reverse Scored

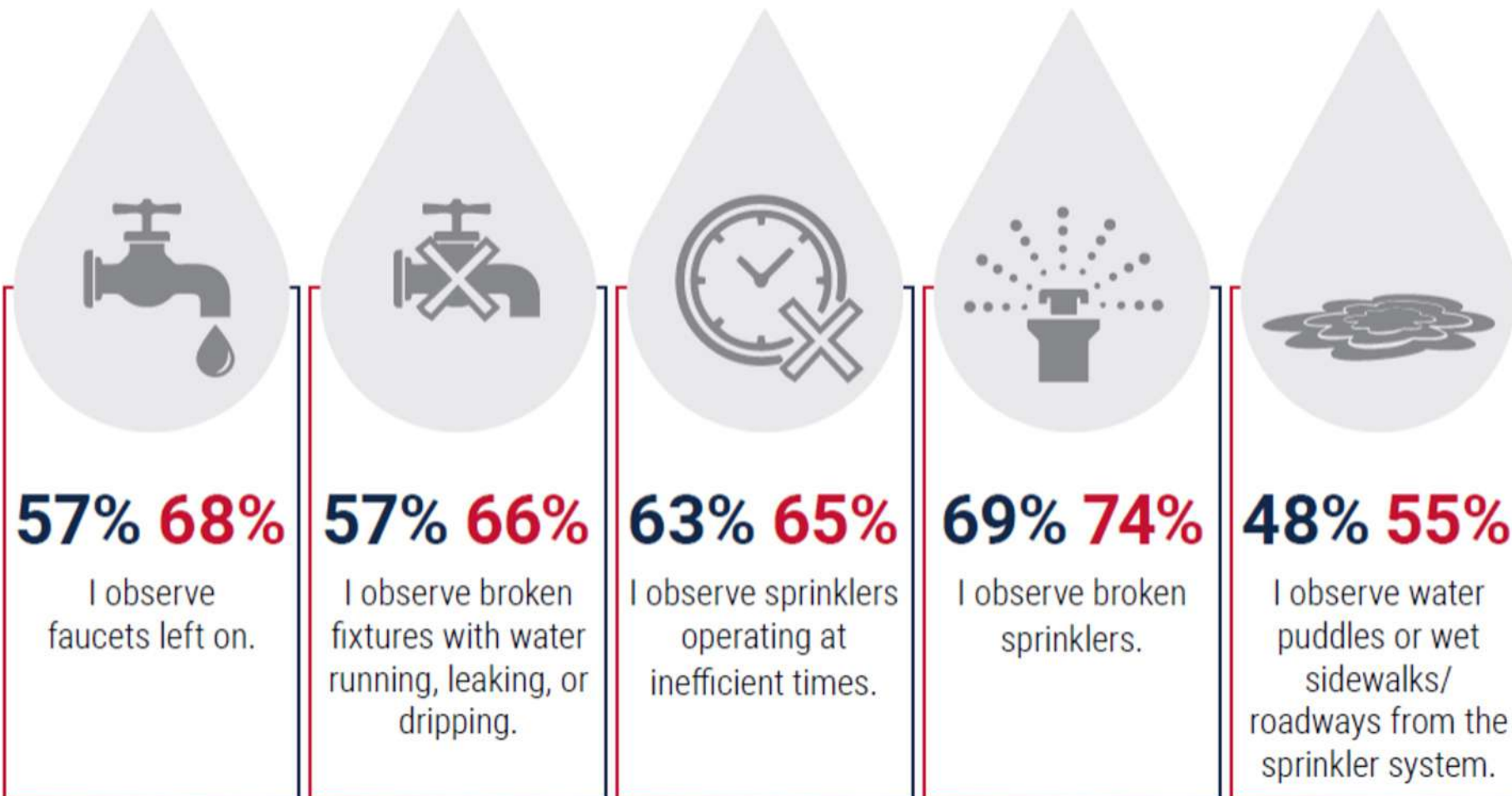
# WATER OBSERVATIONS

■ Students ■ Faculty/Staff

## Did You Know...

Water is required to clean and keep equipment and machinery functioning properly? **80%** **85%**

*Percent responded yes*



# VEHICLE OBSERVATIONS



Students



Faculty/Staff



I observe Fresno State vehicles idling.



**60%** **76%**



I observe personal vehicles idling.



**43%** **62%**



I observe unnecessary golf cart usage around campus.



**62%** **43%**

## Did You Know...

Golf cart chargers stop charging (or shut down) when the battery is fully charged, even though it is still plugged in?

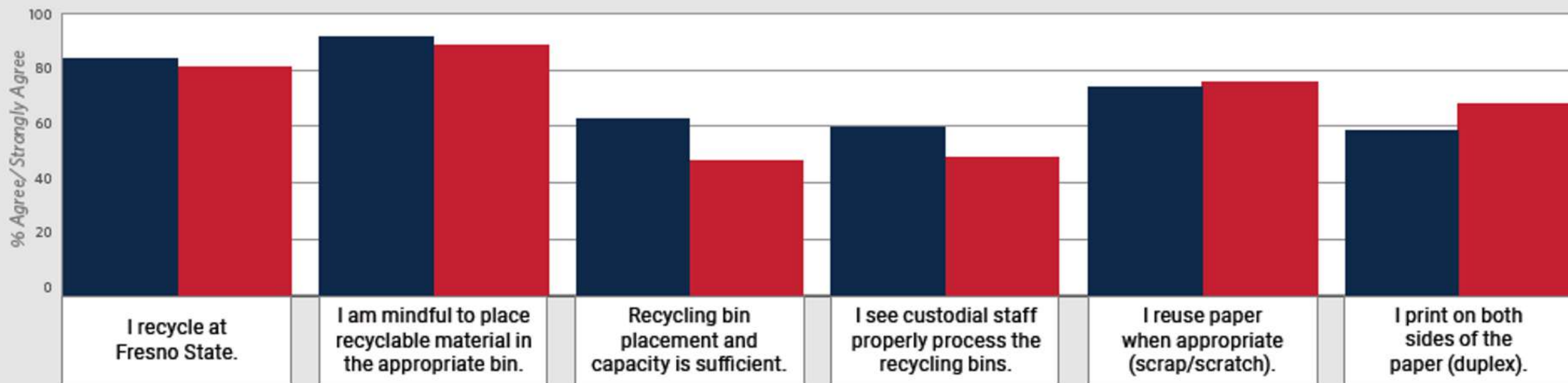
**26%** **45%**

*Percent responded yes*

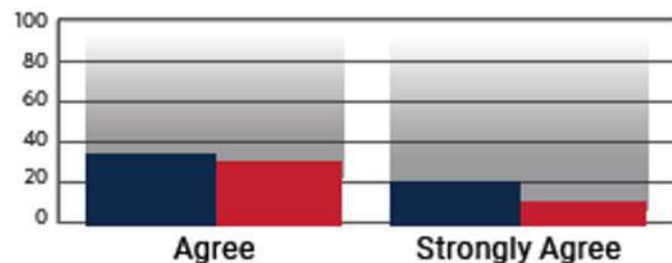


# RECYCLING

■ Students ■ Faculty/Staff

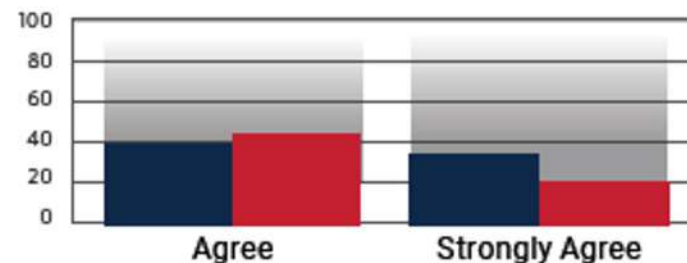


Every waste station has both a trash and recycling bin.



**Potential for attitude shift & culture change**

I understand which items can and can't be recycled at school.



# TRANSPORTATION

■ Students ■ Faculty/Staff

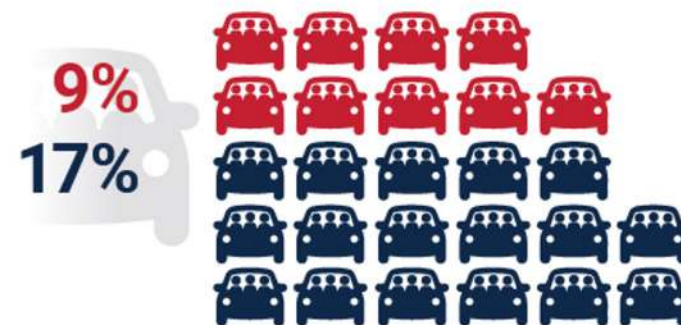
I walk to campus.



I drive an alternative-fueled/hybrid vehicle to campus.



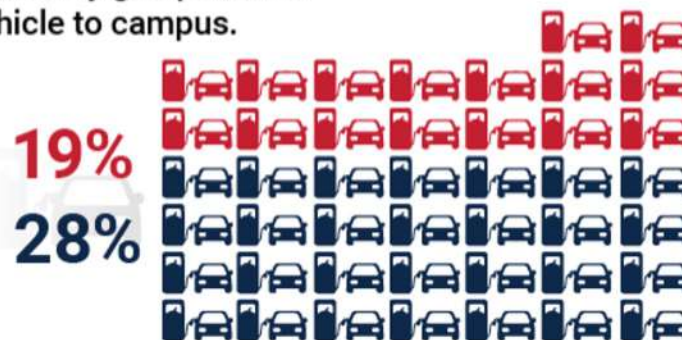
I carpool/ride share to campus.



I ride my bicycle to campus.



I drive my gas-powered vehicle to campus.

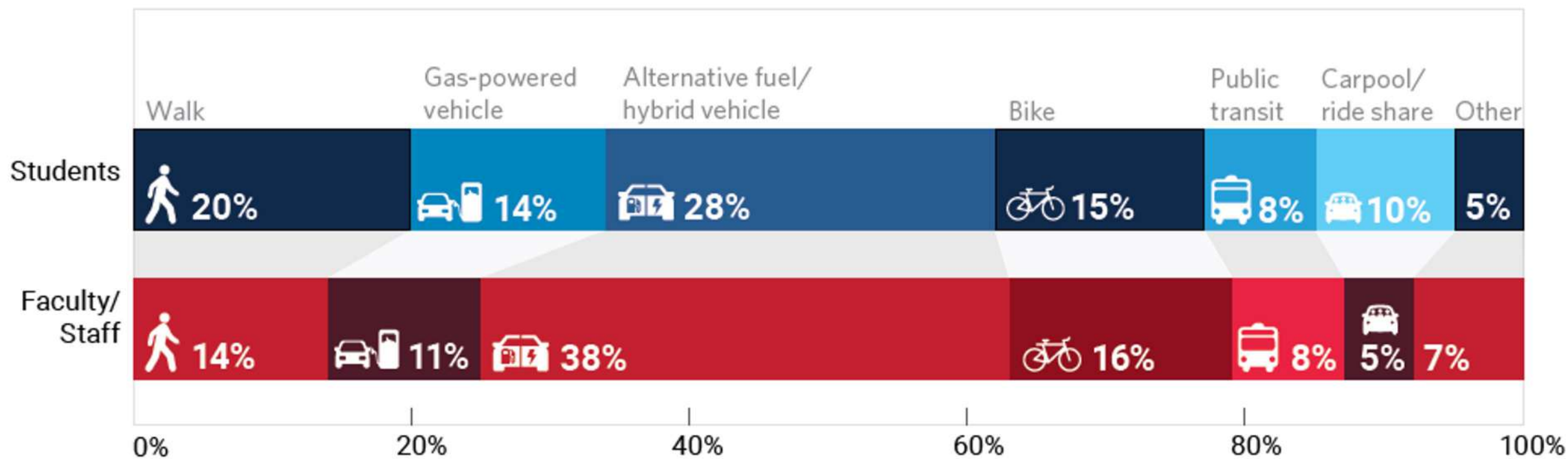


I ride public transit to campus.



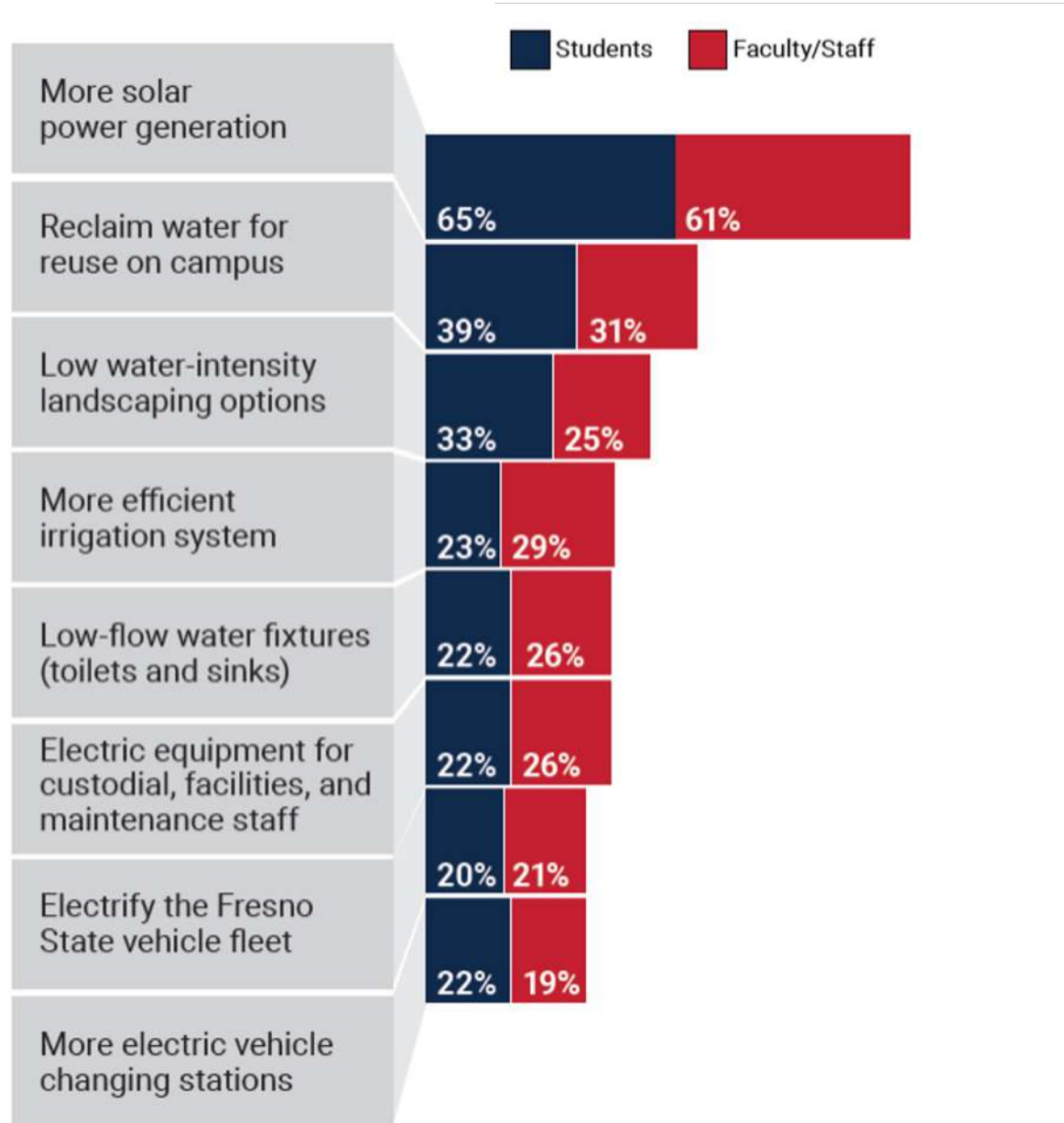
# IN AN IDEAL WORLD, HOW WOULD YOU LIKE TO COMMUTE TO CAMPUS?

■ Students ■ Faculty/Staff





PLEASE CHECK THREE FUTURE SUSTAINABILITY PRIORITIES FOR FRESNO STATE.



HOW DO YOU SEE OTHERS WASTING ENERGY?

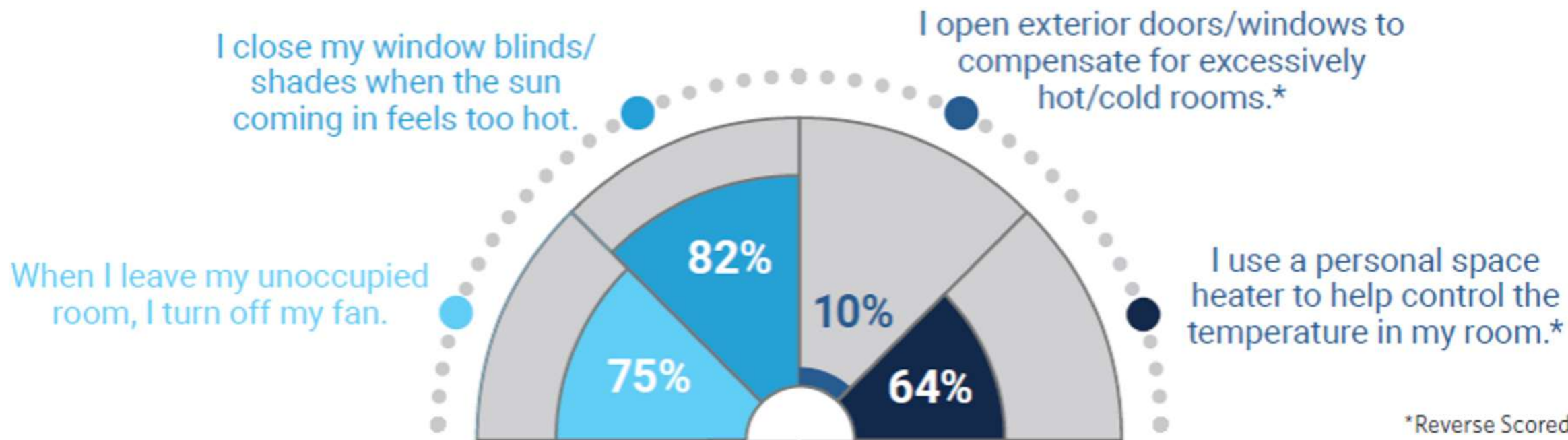
**Lights left on**  
Doors and windows  
**Not recycling correctly**  
**Water waste**  
Landscaping Heating and cooling  
**Devices and equipment**

Heating and cooling  
**Lights left on**  
Doors and windows  
**Not recycling correctly**  
Landscaping Devices and equipment  
**Water waste**

# Residential Students

## OCCUPANT COMFORT

Students Web Survey n = 260  
MoE ±5.2%  
MoE - Margin of Error



# SHOWERS

Do you have your phone  
with you in the bathroom?

**66%**  
Yes

Do you listen to  
music in the shower?

**51%**  
Yes

How many songs,  
on average?

**4.5**  
Songs

My showers take

**16.2**  
Minutes  
on average

On average, I take

**6.2**  
Showers  
per week

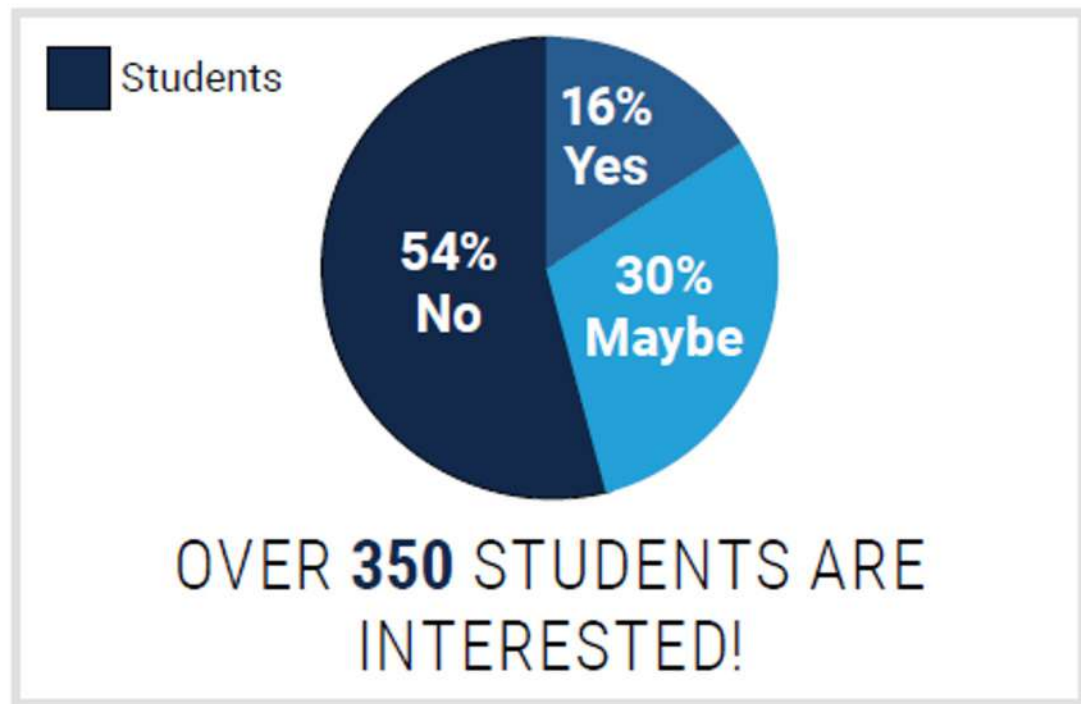
Do you time  
your showers?



**23%**  
Yes



## INTERESTED IN BECOMING INVOLVED WITH FRESNO STATE'S SUSTAINABILITY AND ENERGY CONSERVATION INITIATIVES?





## Finding 1: Energy-wasting Behaviors Exist

### **Recommendation:** Review and Communicate University Policy on “Group-Use” Printers and Default Practices

Individuals appear to be aware and cognizant of device and equipment vampire load.

Group spaces and shared devices warrant more investigation.

University position on printing should be refreshed for faculty and staff.

Printing policy refresher on using shared devices can be done through social media and “how to” guides.

### **Recommendation:** Review and Communicate University Policy on Opening Doors/Windows and Space Heater Use

47% of respondents open exterior doors/windows to compensate for excessively hot/cold rooms, and 39% of faculty and staff have used/use a space heater at least some of the time.

Beneficial to review and/or create a policy or position regarding opening windows and doors and the use of personal space heaters.

Share the policy online and via social media, in tandem with the CUPR P3 Project construction completion of the external HVAC piping systems and control upgrades.

## Finding 2: Attitudes Toward Energy Conservation Statements are Less Desirable

### **Recommendation:** Continue Awareness Communication and Marketing Efforts

Build upon the existing branded marketing materials

Increase project understanding and knowledge, creating buy-in and support for additional sustainability initiatives on campus

Mitigates some of the construction challenges to people and their environments

Possible materials include:

- Communicating positive and/or desirable HBEA responses

- Announcing University strategies to address HBEA reported concerns

- Installing building specific lobby banners communicating building improvements

- Light switch sticker prompts

- Golf cart bumper stickers

- Vehicle idling signs in parking areas

- Recycling bin stickers

- Additional social media posts regarding various University policies

### Finding 3: Recycling Behavior is a Concern Among Both Students and Faculty/Staff

#### **Recommendation:** Audit Campus Recycling System

While desirable individual recycling behaviors for all respondents were generally high, infrastructure questions were significantly lower.

Our experience shows that proper recycling behavior, reassurance with the recycling system, and successful reduction of waste hinges on three critical areas: ease, education, and trust

Initiate a data-driven review of campus recycling, in coordination with sustainability-led student groups

Work with one or several student groups identify barriers to proper recycling, such as capacity and location issues

Audit will result in suggestions to improve current recycling throughout campus and guide decisions toward future changes

#### Finding 4: There is a Willing Audience Ready to Help Fresno State Conserve Energy

**Recommendation:** Provide Feedback from HBEA Report to Campus Community

Provide feedback from HBEA report to campus community through the CUPR P3 Project website, various infographics, social media, and PowerPoint presentations  
Communicate the results with student groups

**Recommendation:** Continue Aligning Internships with Student Interest and Program Potential

Leverage BIG internship program and create hands-on STEM activities and sustainability programming for local K-12 schools  
Engage broader community  
Connect with potential future Fresno State students  
Build intern student's resume and communication skills

**Recommendation:** Consider Feasibility of Sustainability Living Learning Community for Students

Explore feasibility of Living Learning Community (size of residential population and level of engagement in current sustainability initiatives)  
If not favorable, efforts can shift to support other student sustainability-based endeavors and programs



## Finding 5: Perceptions of Sustainability and Energy Conservation May Not Represent Existing Efforts

### **Recommendation:** Ensure Maintenance Work Order System is Understood, Utilized, and Executed

Water waste focus area underscores perception vs. reality disparity at Fresno State

Prioritize water conservation efforts across campus

Indications of a larger deferred maintenance concern and/or overworked maintenance personnel

Install prompts for water conservation at the source such as static clings on bathroom mirrors and yard stakes near sprinklers

### **Recommendation:** Review and Communicate University Water Usage Policies

Review policies on water conservation, low-intensity water activities, and sustainability priorities

Review the sprinkler policy

Share in a fully transparent manner online and through social media

### **Recommendation:** Communicate Necessity of Golf Cart Usage and Sustainable Practices

Participants are concerned about golf cart usage and charging

Communicate golf carts are more efficient than using gas-powered vehicles (i.e. bumper stickers)

# Questions - Comments?



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