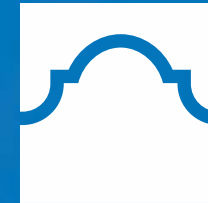


# ACD Energy and Sustainability Executive Overview



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DISTRICT

PRESENTED by: **Greg McClure, AVC**  
**Facilities Ops and Construction Mgt**  
**September 2024 Board Cycle**



## Board Policies in Support of Charges

### *B.10.1 3 Environmental Sustainability*

- The Board of Trustees delegates the Chancellor or designee the responsibility to develop, manage, and direct the College District's Sustainability Program. The sustainability mission of the College District is "meeting our needs today while ensuring that future generations retain the ability to meet their needs." The College District embraces environmental, social and economic sustainability by making provisions and taking responsibility for its decisions and actions.*

## Charges to the Chancellor

- Institutional Excellence and Continuous Improvement (charge 8)*



# Overview





Energy and Sustainability Successes

Energy and Sustainability Strategy

On-going Activities – Next Steps

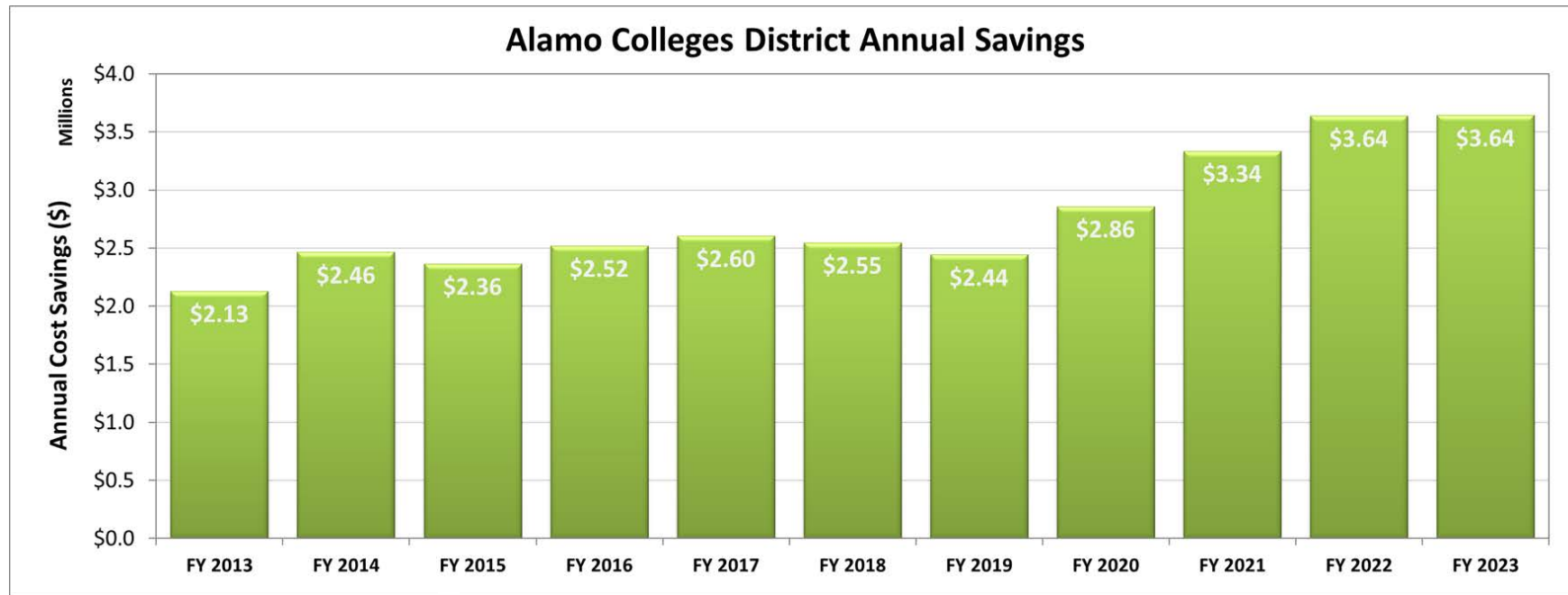


# Successes – Sustainability and Energy

- **Performance Wins**
  - Cumulative cost avoidance or **savings of \$3.6M per year** 
  - Annual demand reduction incentive payments more than **doubled over last 10 years** 
  - Summer 4-day work week **savings increased 43%** since inception 
  - **Emissions are all-time low** with 44% reduction from 2009 Baseline 
- **Sustainability goals integrated into MTN and PM funded Renovation Work**
  - Facility Renovation, Major System Rehabilitation (Roof and HVAC), and Preventive Maintenance Projects
  - **Investing \$117 M of MTN and PM Funds** in HVAC, Exterior Enclosure, Roofing System Types
  - Adding Solar PV arrays to at least one roof ongoing roof replacement project
- **Sustainability on New Construction → energy design & construction standards**
  - ASHRAE 90.1, adopted by Texas
  - 2018 International Energy Conservation Code (IECC), adopted by the city of San Antonio
  - ACD Design Standards
- **Operations; Building & Central Plant HVAC Optimization & building commissioning**
- **Energy savings Projects**

# Energy & Sustainability Success

- Cumulative cost avoidance & savings of **\$3.6M/yr** through initiatives and ACD standards
  - Water-wise fixtures and irrigation systems
  - Energy-Star rated HVAC/R systems and appliances
  - LED lighting; building automation and lighting controls
  - Energy-efficient windows, doors, skylights & frames (low-E glass/UV tint/thermal control)
  - Energy-efficient roofing (increased R-value & reflective surfaces), etc.



Good



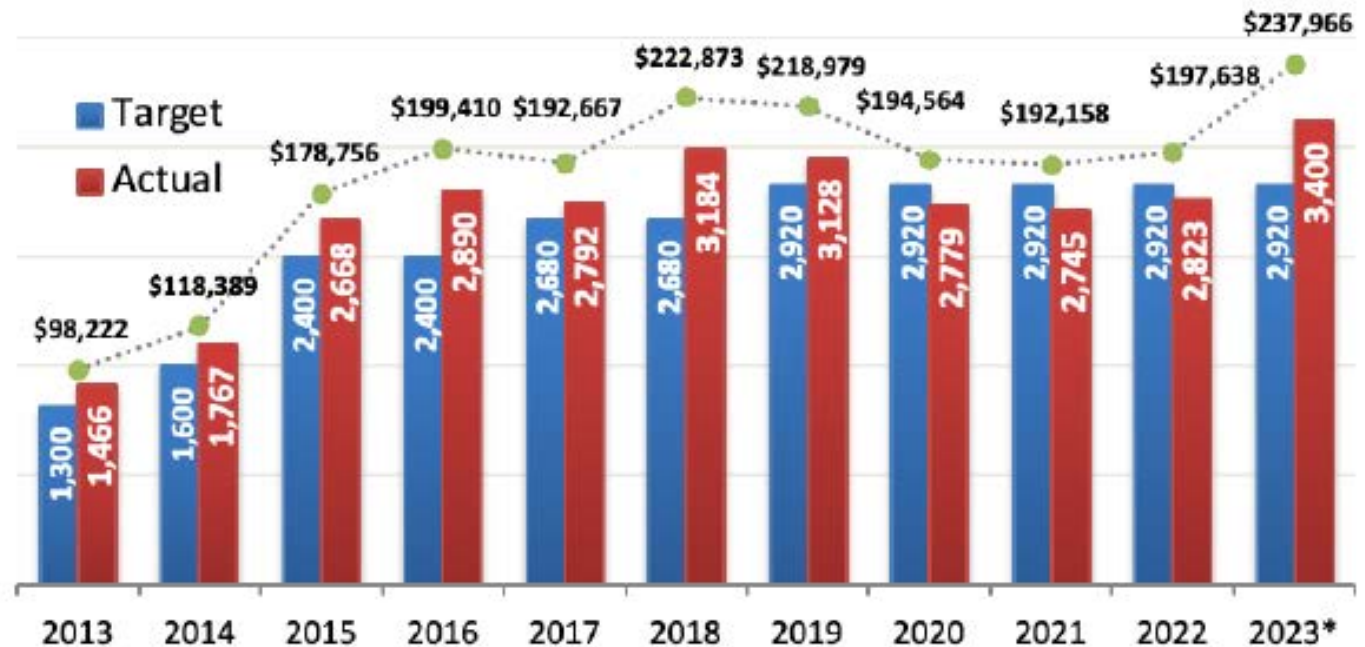
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# Demand Response Program Success

- CPS Energy incentive payments – Decrease energy use when alerted
- **More than doubled** incentive payments over last 10 years
- Plus \$77K additional for 2024, Winter DR Pilot

### Previous and Current DR Performance and Rebate



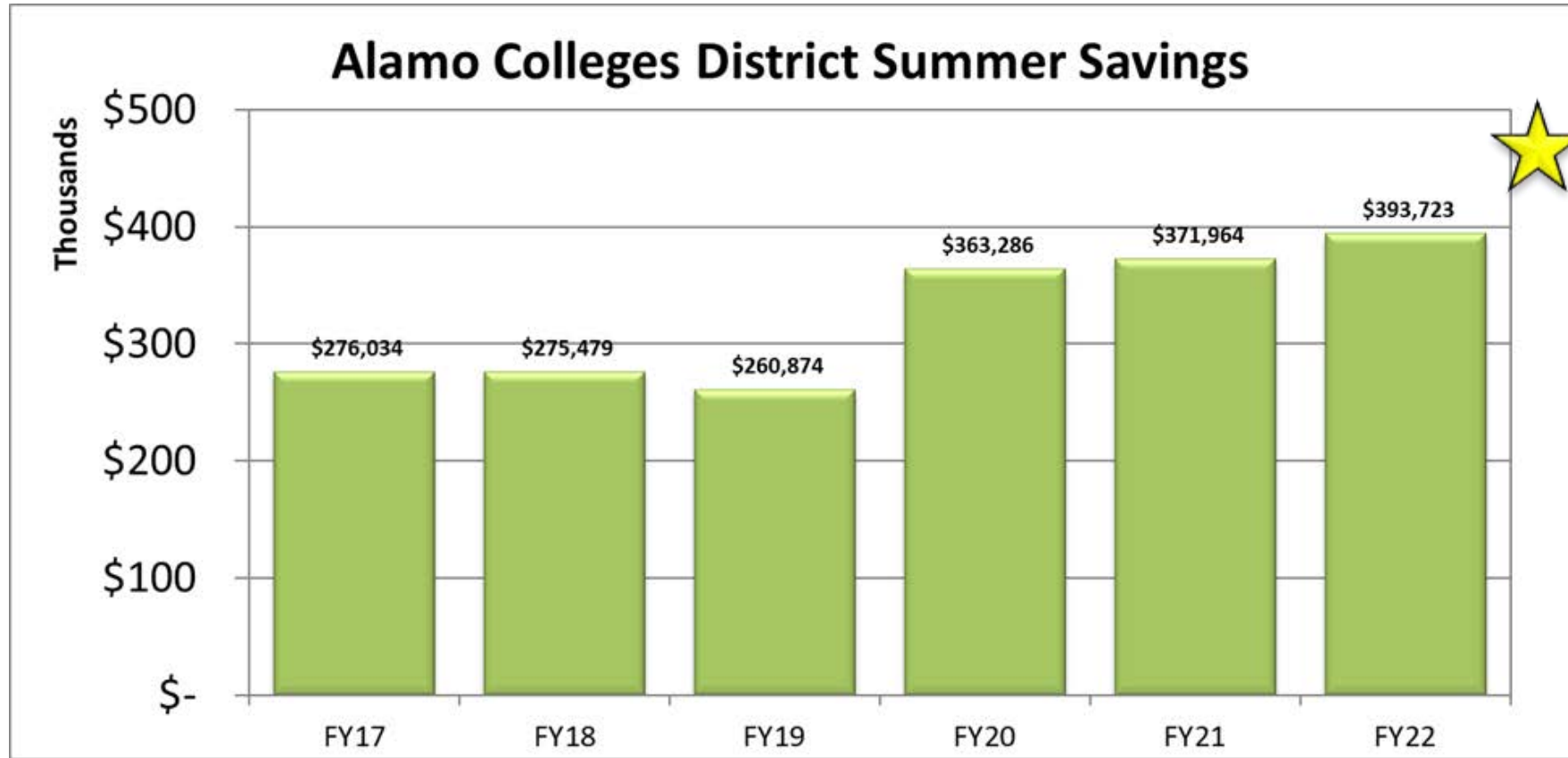
Good





# Summer 4-day workweek Success

- HVAC setback and lights off or unoccupied buildings June and July
- **43% increase in savings** since inception



# Other Energy & Sustainability Initiatives

## Water catchment



## Thermal Energy Storage (NLC, NVC, PAC)



## PV solar Arrays



San Antonio College – Scobee Education Center



Northwest Vista College – Parking Garage

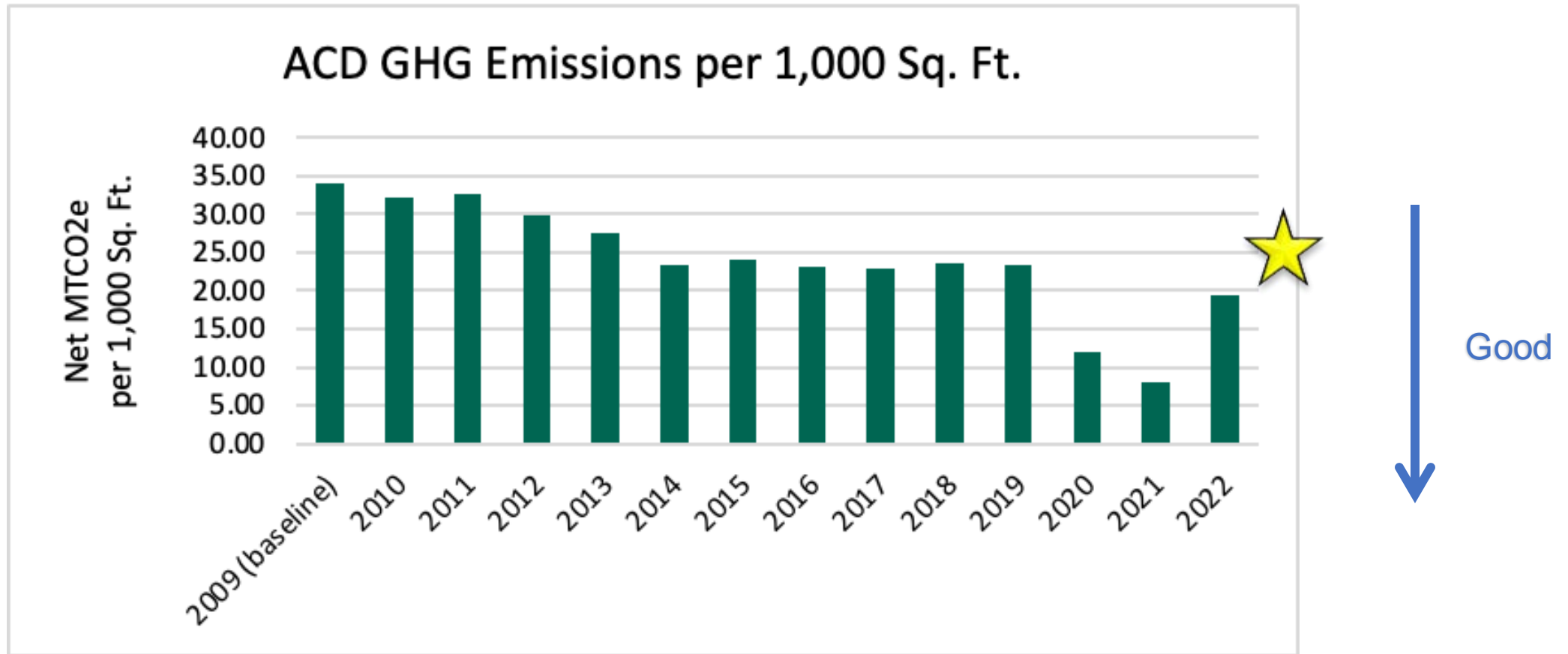
## Electric vehicle chargers





# Greenhouse Gas Reduction

- 2009 baseline with goal (procedure B.10.1.1) of 30% reduction by 2020
- Reduction in 2022 (post COVID) is 19 MT down from 34 MT, a **44% actual reduction**



# Energy & Sustainability Master Plan (Roadmap)

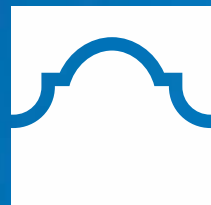


# Next Steps

- For information – No Board action requested
- Complete Energy & Sustainability Master Plan (roadmap)
  - 75% complete, Estimated completion by late Fall 2024
  - Align Board policy and ACD Procedures by early Spring 2025
- Map execution and funding strategies for Utility Savings Opportunities
  - \$3M/yr savings to realize



Thank you.



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# Energy & Sustainability Master Planning



- 75% complete on ACD Energy & Sustainability Master Plan
- Building Energy Efficiency (BEE)
  - Austin Based Facility energy Engineering Firm
  - Local firm – International impact
  - Specialists in energy and data;
    - 5 engineering PhD's and Doctorates, 10 engineering Master's degrees and 8 Professional Engineer (PE) licenses

WHERE ARE OUR WORKER Bees?



Brenda Hu  
M.A.B., CEM,  
C.P.A. (Inactive),  
President



Dr. W. Dan Turner  
Ph.D., P.E.,  
Founder &  
President  
Emeritus



Dr. Warren Heffington  
Ph.D., P.E., CEM,  
Engineering  
Advisor



Dr. Dave Dong  
Ph.D., P.E., CBCP,  
CEA, CEM, CWEP,  
CEO



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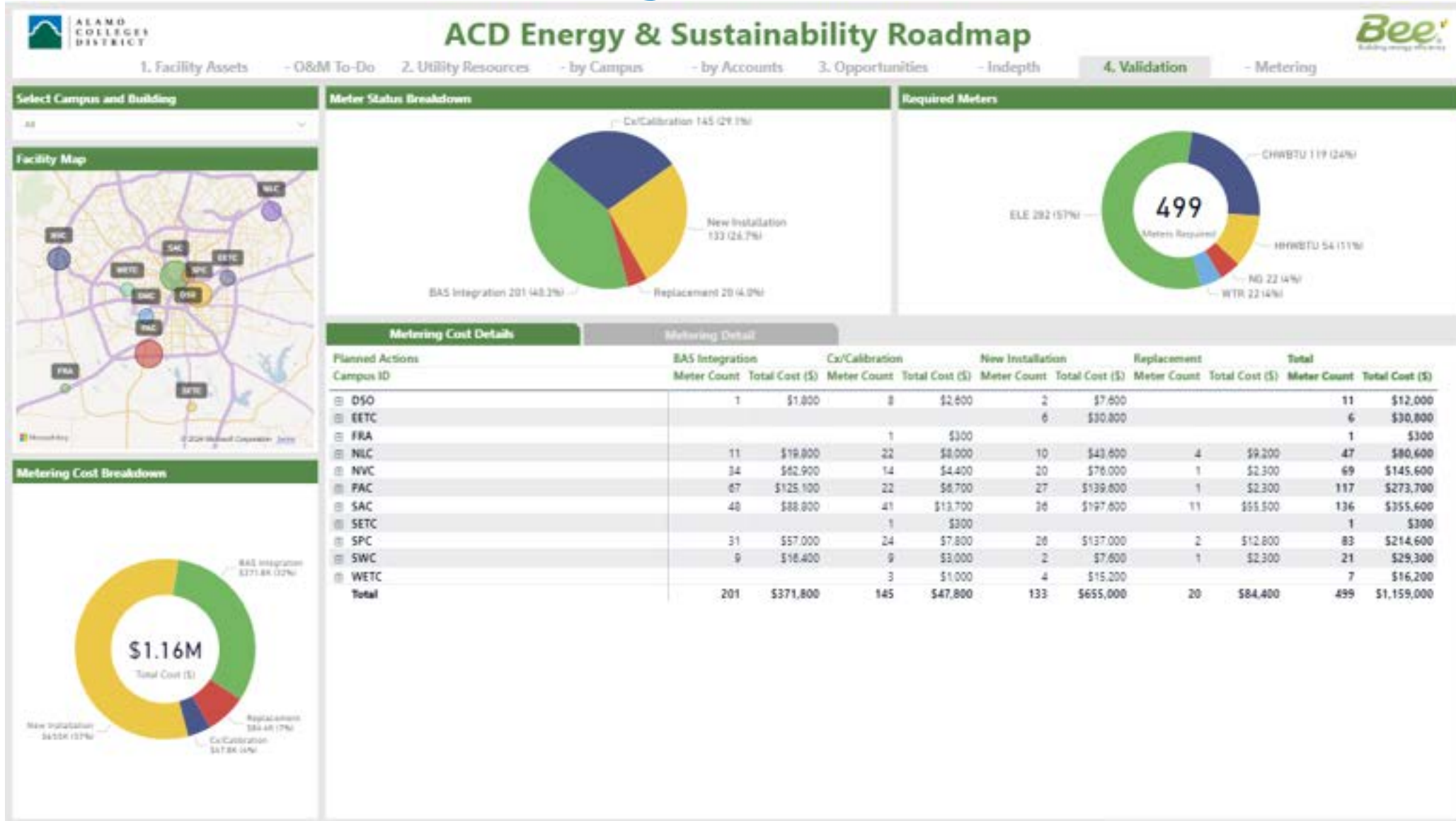




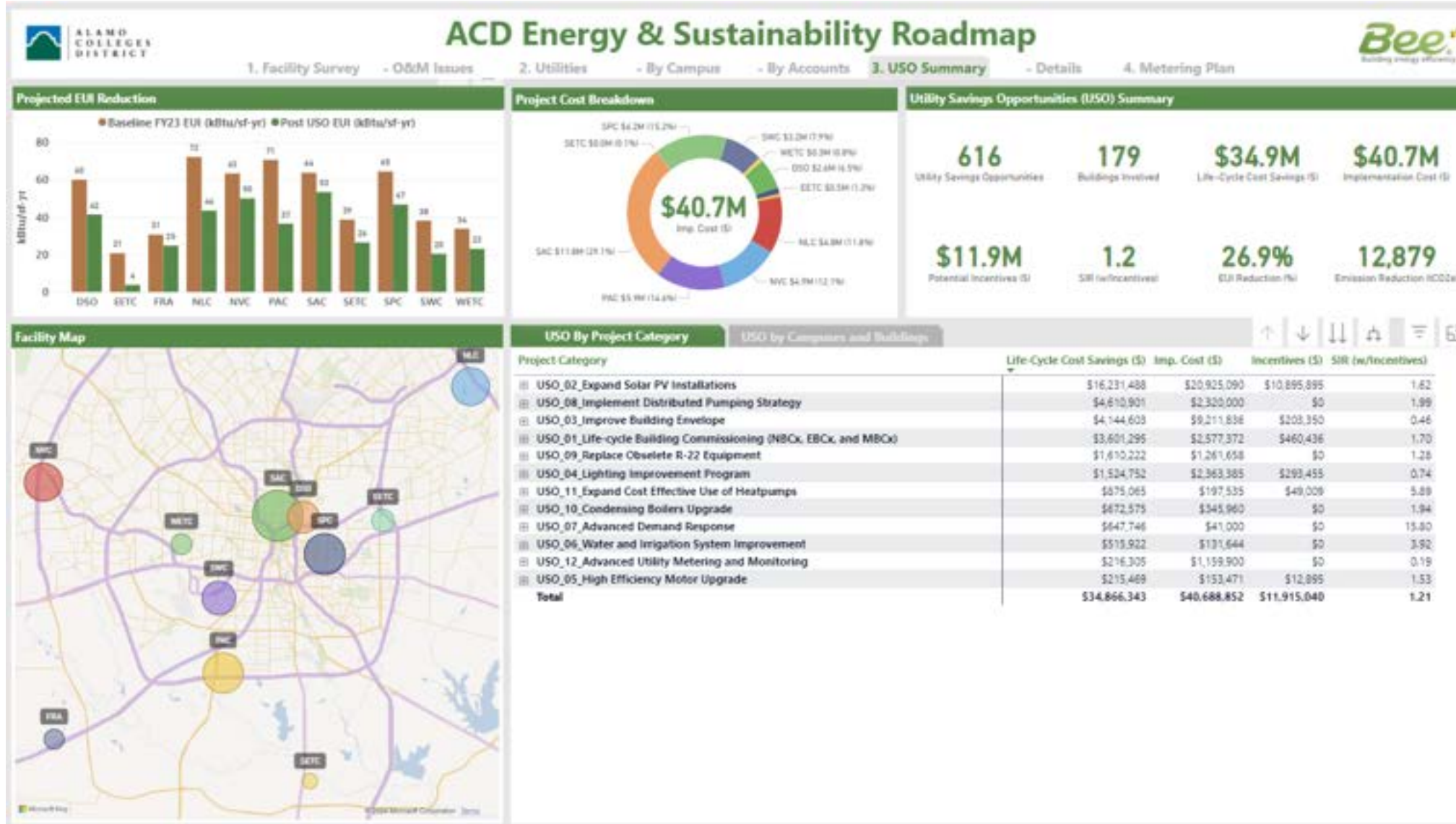
# Energy & Sustainability Master Plan (Roadmap)



# Meter/Monitor/Analyze – ACD Dashboard



# Utility Savings Projects – ACD Dashboard



# Utility Savings Projects (draft)

USO Category	Est. Cost Savings (\$/yr)	Est. Implantation Cost (\$)	Potential Incentives (\$)	SPB (Years)
USO_01_Life-cycle Commissioning (NBCx, EBCx, and MBCx)	\$757,861	\$2,344,973	\$422,051	2.5
USO_02_Expand Solar PV Installations	\$1,544,415	\$27,680,671	\$14,708,693	8.4
USO_03_Improve Building Envelope	\$192,910	\$9,459,041	\$208,300	48.0
USO_04_Lighting Improvement Program	\$187,182	\$2,363,385	\$293,455	11.1
USO_05_High Efficiency Motor Upgrade	\$14,943	\$153,471	\$12,895	9.4
USO_06_Water and Irrigation System Improvement	\$33,197	\$144,141	\$ -	4.3
USO_07_Advanced Demand Response	\$63,106	\$47,000	\$ -	0.7
USO_08_Implement Distributed Pumping Strategy	\$300,387	\$2,320,000	TBD	7.7
USO_09_Replace Obsolete R-22 Equipment	\$57,547	\$454,083	TBD	7.9
USO_10_Condensing Boilers Upgrade	\$59,440	\$345,960	\$ -	5.8
USO_11_Expand Cost Effective Use of Heat Pumps	\$77,298	\$1,536,380	TBD	19.9
USO_12_Advanced Metering and Monitoring	TBD	TBD	TBD	TBD
<b>Total</b>	<b>\$3,288,286</b>	<b>\$46,849,105</b>	<b>\$15,645,394</b>	<b>9.5</b>





# New Building Construction Standards

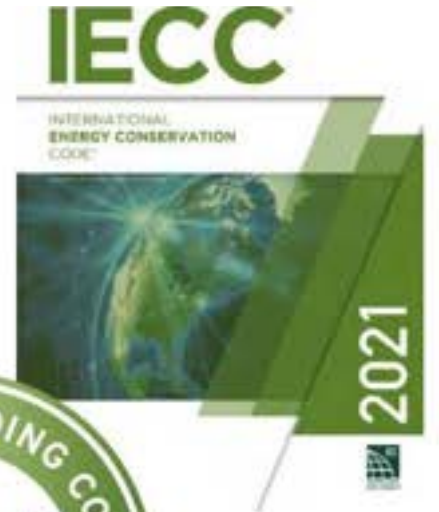
Surpass Design Codes and Standards for Energy Efficiency

Implement Standardized Rating Systems

Enhance Organizational Requirements and Standards for Energy Efficiency

Prioritize Commissioning for Quality Assurance

Enable IRA Credits for Design Firms





# Utility Management Program – ACD Dashboard



# Funding Innovation

## State of Texas – LoanSTAR

- Up to \$5 Million low interest loan program
- Preliminary Energy Assessment (PEA) and Utility Assessment Report (UAR)

## Inflation Reduction Act (2022)

- Direct payments to Tax exempt entities
  - Solar up to 30% of cost
- + 10% Domestic product = 40% < 1 MW

## Utility rebates and incentives (CPS/SAWS)

- Solar PV (promotes local contractors)
- Energy efficiency/Demand Response
- Water Conservation

