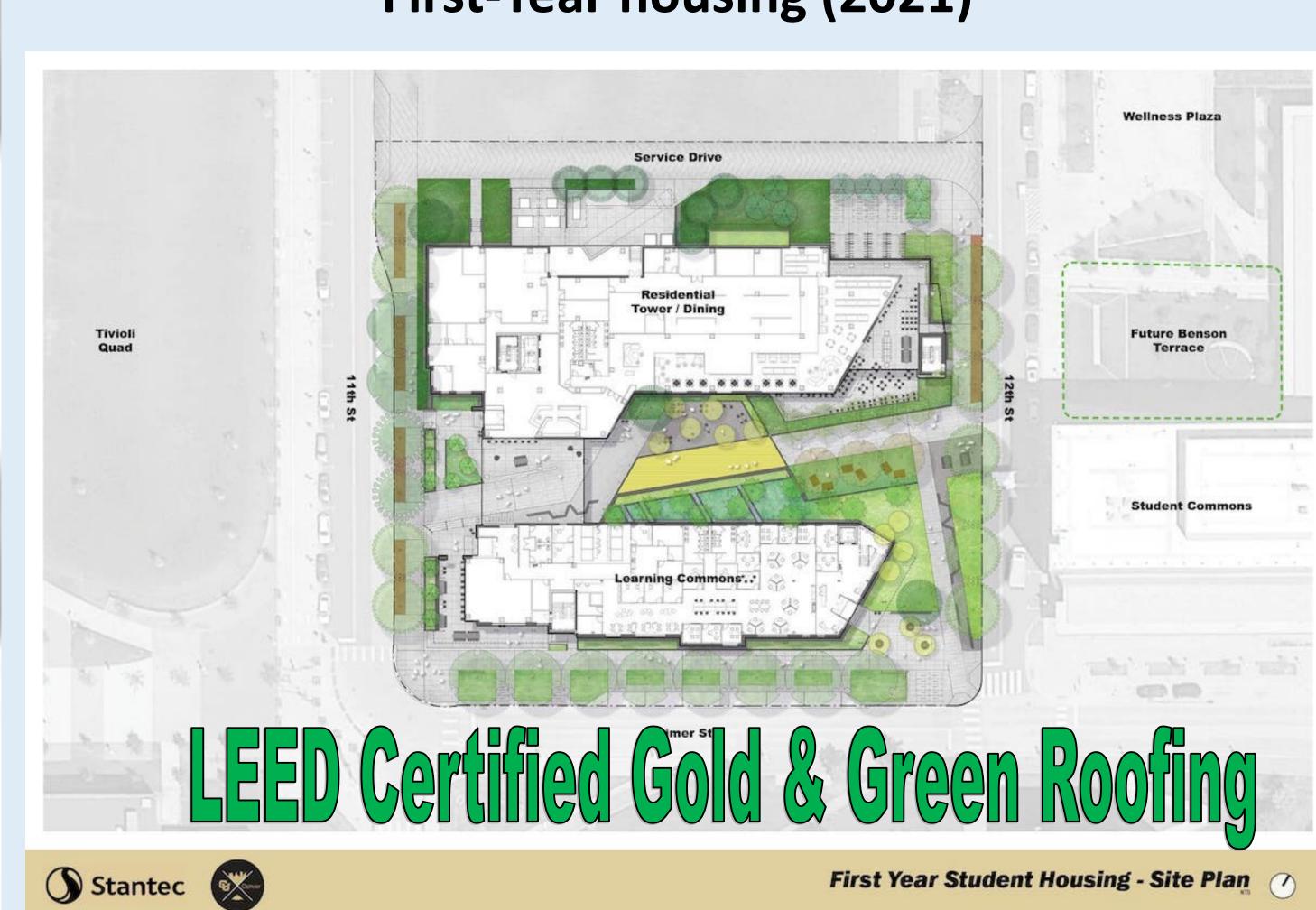
Auraria Campus: University of Colorado Denver Created by: Briley Manzanares

Maximizing Building Energy Efficiency

Structural energy resource potential

- . Solar Potential
- . Zero Energy Budgeting
- . Structural Advantages/Maintenance
- . Renewable energy security
- . Planned systems of conservation: Water and Electricity

First-Year housing (2021)



Pre-development

University of Colorado Denver: A Multi-Criteria Assessment of Guided Efficiency on Campus

on campus. Within this research, energy use intensity of all campus buildings will be related to each unit of floor area. The CCD. The efforts of energy efficiency in buildings across Auraria Campus have been gaining effort to become "net zero" buildings. In the event of this construction on-campus, there is persistence to develop long term trends of sustainability based on Imathematical methods and multi-criteria assessments such as STARS. The campus is restricted to its urban surroundings, growing in population and units of floor area, and requesting attention for sustainable action. STARS is used to evaluate the campus' annual site energy consumption compared to the minimum performance threshold per gross square foot and per Fahrenheit degree day, as well as the reduction of total source energy consumption.

Targets for Building Energy Efficiency on Campus

Goals

 Achieve Zero Energy Budget on CU-Denver wide campus by 2040, utilizing energy efficiency monitoring and adapting plans.

 Obtain 2-4 credits for Building Energy efficiency from AASHE: STARS.

Increase environmental education and CU Denver Community projects; practicing holistic energy conservation.



AASHE: STARS Building energy efficiency

Criteria	floor area
	Pt. 2-Reduction in source energy
	use per unit of floor area
Scoring	• EUI-adjusted floor area
	 Total energy consumption (site
	energy), performance year
	 Total energy consumption
	(source energy)
	Electricity- (kilowatt-hours)
orting Fields	Stationary fuels and thermal
	energy- (MMBtu)
	Baseline vs. Performance

Measurements

Pt. 1-Site energy use per unit of

Objectives

Design an energy flexible budget for YTD targets of EUI within campus build

Reduce Energy-Use-Intensity to 65 Btu per gross square foot; per Fahrenheit degree day in all CU-Denver facilities.

Source: AASHE-OP 5:Building Energy Efficiency

Take Off

Briley L. Manzanares

Undergraduate Student, Department of Geography and Environmental Science Co-Authors: Rafael Moreno-Sanchez, Kirsten Christensen, Amanda Weaver, & Jay Campbell

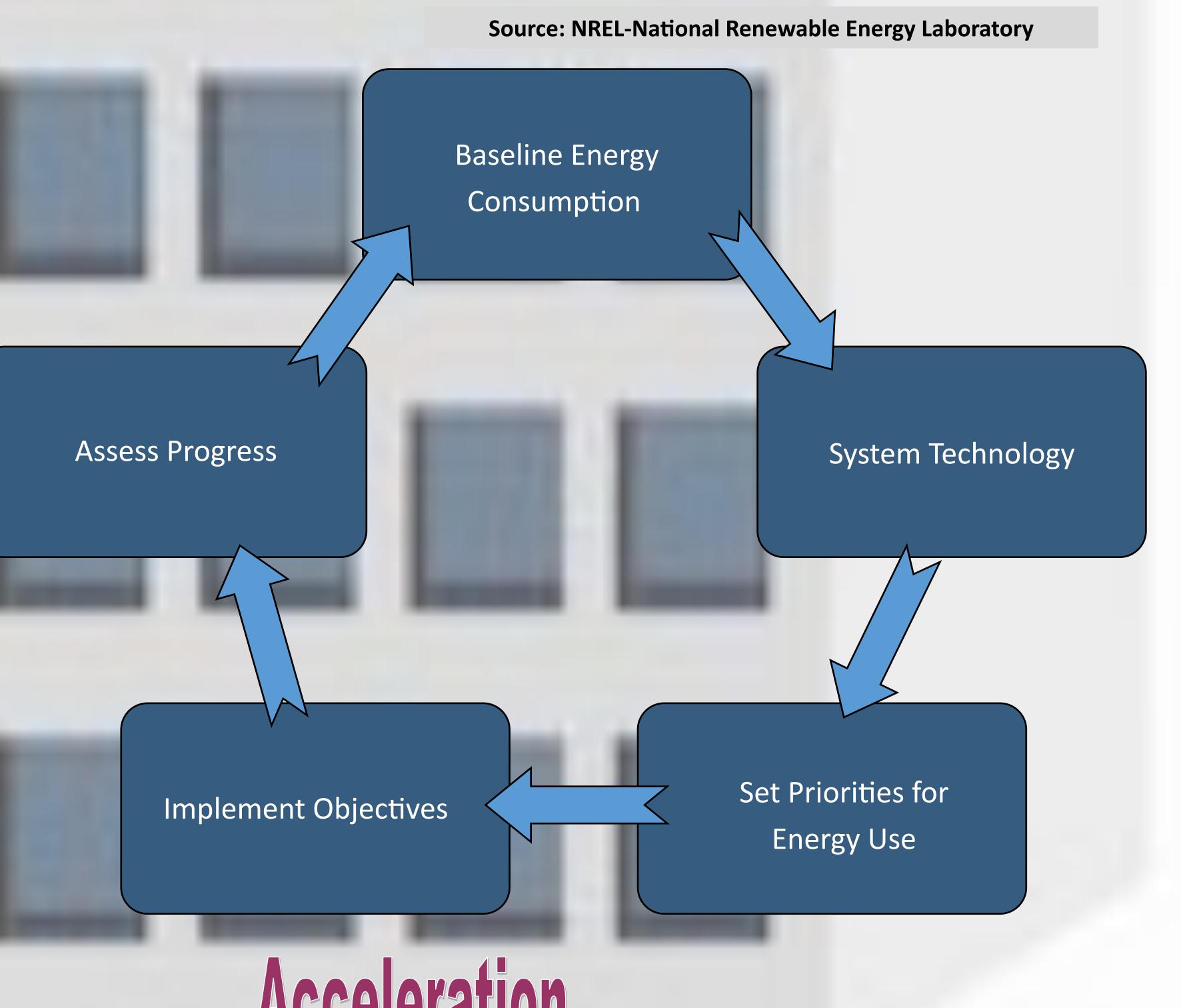
Economic Prosperity & Environmental Awareness

Balancing a Zero Energy Budget

New Buildings (Existing Buildings (Energy Supply Renewable Energy Options

Energy-Intensive Space Passive Solar Design Electricity Loads Waste Heat Recovery

Indoor Air Quality



Innovation Support & Energy Efficiency Indicators

Campus-Wide Programs

Campus Programs for Sustainability:

ASCP— Auraria Sustainability Campus Program AASHE— The Association for the Advancement of Sustainability in Higher Education

Long-term Projects:

2010 Auraria Campus CAP (Climate Action Plan) 2019 Waste Management & Compost Initiatives

Community Organizations for Environmental

Education:

E.D.G.E— Every-Day Geographical Experiences

⇒Lighting Levels Sustained ⇒Renewable Energy

ilding Energy Efficier

& Consumption

⇒Reduced GHG

⇒Reduction of Ener

gy Costs & Con-

⇒Increased Air

Emissions

sumption

Quality

⇒Adaptive Re-

sponse & Manage ment

⇒Meeting Goals &



Energy efficiency measures are the cost efficient way to managing energy budgets and reduce emissions. Monitoring efficiency in existing building and minimizing the impacts of growth enforce goals of efficiency and hit targets of conservation.