

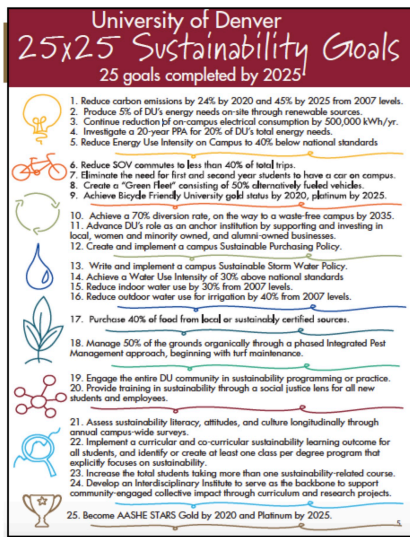
# Sustainable DU: Goals, Renewables

## Transformative Direction 4: One DU

Continuing to establish and meet goals related to reduction of our carbon footprint by meeting green building requirements on new construction and retrofitting older buildings, resulting in cost savings and eventual carbon neutrality and exploring alternative energy options on campus and via partnerships.

### Goals

Carbon neutrality by 2050  
24% Carbon footprint reduction by 2020  
(over 2006 baseline)  
**We are currently at over 35% carbon footprint reduction**



Goals approved in June, 2017

### Energy Efficiency



The Green Fund (established in June, 2017) provides funding for energy efficiency projects with a blended return on investment of ten years or less. Projects this year included LED lighting upgrades in Nelson Hall, parking garages, and all of the Ritchie Center. Cumulative savings from these projects will be over 2,000,000 KWH, and over \$268,000 annually. Since 2008, over \$3m of energy efficiency projects have yielded annual savings of over 9,000,000 KWH and \$874,000.

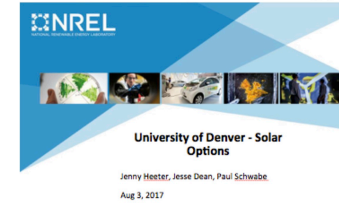
### Green Buildings

New buildings continue to be built at LEED Silver standards or higher. Reaching these standards requires a focus on energy and water consumption, daylighting, bicycle amenities, heating and cooling systems, indoor air quality and more. The Green Fund is providing incremental funding for more efficient building systems. The Denver Advantage buildings will be the first on campus to comply with the new Denver Green Roof Ordinance. The first year residence hall and the Pioneer Career Achievement Center are both being designed with solar arrays.



First year residence hall rendering

### Solar Energy



Colorado State University

Request for Proposals #B900648

Renewable Electricity



A grant from the National Renewable Energy Laboratory (NREL) provided an analysis of solar options and funding mechanisms for DU. A partnership with CSU allowed DU to participate by name in their request for proposals for sourcing 100% of electrical demand through renewables. CSU did not accept any of the proposals, but DU awarded a contract to Pivot Energy for on campus solar photovoltaics. This project will place over 7,000 panels on 18 rooftops, for a total of 2,250 kW. These panels will produce over 3,100,000 kWh annually, 7-8% of the total campus electricity consumption. DU will retain all of the renewable energy credits (RECs) associated with this energy, allowing us to reduce our carbon footprint 3-4%,

Energy Saving Projects - Cumulative Q2 FY18  
FY17 and Prior - Completed

Type	#	Construction Cost	Less Rebates	Net Investment	Annual Savings (Therms)	Annual Savings (Kwh)	Annual Savings (@Prior Rates) Amount	Average Payback (yrs)
Controls	15	\$ 406,687	\$(126,882)	\$ 279,805	30,650	2,020,433	\$ 204,615	1.37
Lighting	30	\$ 784,474	\$(275,480)	\$ 508,994	3,118,252	\$ 278,559		1.83
Mechanical	24	\$1,168,857	\$(365,246)	\$ 803,611	88,318	2,337,517	\$ 252,086	3.19
Survey	12	\$ 280,556	\$(158,013)	\$ 122,543				
Totals	81	\$2,640,574	\$(925,622)	\$1,714,952	118,968	7,476,202	\$ 735,260	2.33

FY18 - Completed or In Progress

Type	#	Construction Cost	Less Rebates	Net Investment	Annual Savings (Therms)	Annual Savings (Kwh)	Annual Savings (FY17 Rates) Amount	Average Payback (yrs)
Controls	0							
Lighting	1	\$ 387,925	\$(19,516)	\$ 368,409		1,548,330	\$ 139,349	2.64
Mechanical	0							
Survey	0							
Totals	1	\$ 387,925	\$(19,516)	\$ 368,409		1,548,330	\$ 139,349	2.64

**Cumulative** 82 \$3,028,499 \$(945,138) \$2,083,361 118,968 9,024,532 \$ 874,609 2.38

#### FY18 - In Progress Projects:

1 Lighting - Ritchie Center (Common Areas, Williams Tower, Stapleton Tennis)



2019 Project Completion	Estimated Project kW Size*
Ritchie Center	N/A
Gates Field House	450
Joy Burns Arena	200
Malaga Arena	200
Anderson Academic Commons	145
Driscoll South	115
Schwartz Art	55
Boettcher West	145
Sturm Hall	123
ACSI Building	50
Hampden Center	310
Krudson Hall	32
Frontier Hall	45
Armen Hyde	35
Central Receiving/Purchasing	50
University Technology Services (UTS)	45
Cherrington Hall	35
Sweeney Music	85
Fisher Early Learning Center	30
	2,150 kW

2020 New Construction Completion	Estimated Project kW Size*
First Year Residence Hall	50
Pioneer Career Achievement Center	100 kW

\*Final capacity will be confirmed after final engineering and design is complete

Solar panel arrays and sizes