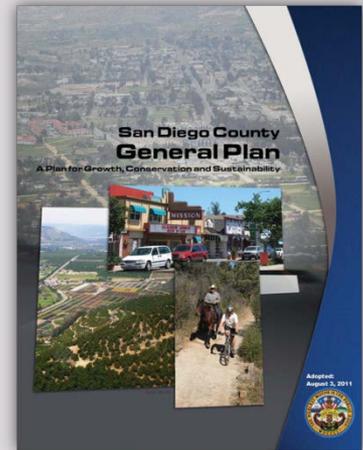




# Progress Report for FY 2018-19

# County of San Diego Strategic Energy Plan 2015-2020



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# Purpose

The County of San Diego Strategic Energy Plan has two distinct components:

The **County Operations Energy Strategy** focuses on County-owned facilities, leased facilities, and County-owned vehicles. The main objectives are to ensure that sustainability practices are assimilated into the organization and to minimize utility (water and energy) consumption/costs.



The **County Community Energy Strategy** focuses on regional program development and management with specific emphasis on the unincorporated area where the County has land use jurisdiction. The main objectives are to encourage residents through outreach and education to reduce energy and water consumption, and to minimize greenhouse gas emissions for healthier and more sustainable communities.

# Operational Update and Progress Reporting

The County's Energy & Sustainability Team has identified and/or implemented specific actions based on the goals of the Key Focus Areas identified in the 2015-2020 Strategic Energy Plan.

## Key Focus Areas:

**Energy Use**

**Water Use**

**Cost Avoidance**

**Transportation**

**Green Buildings & Infrastructure**

**Monitoring and Communication**

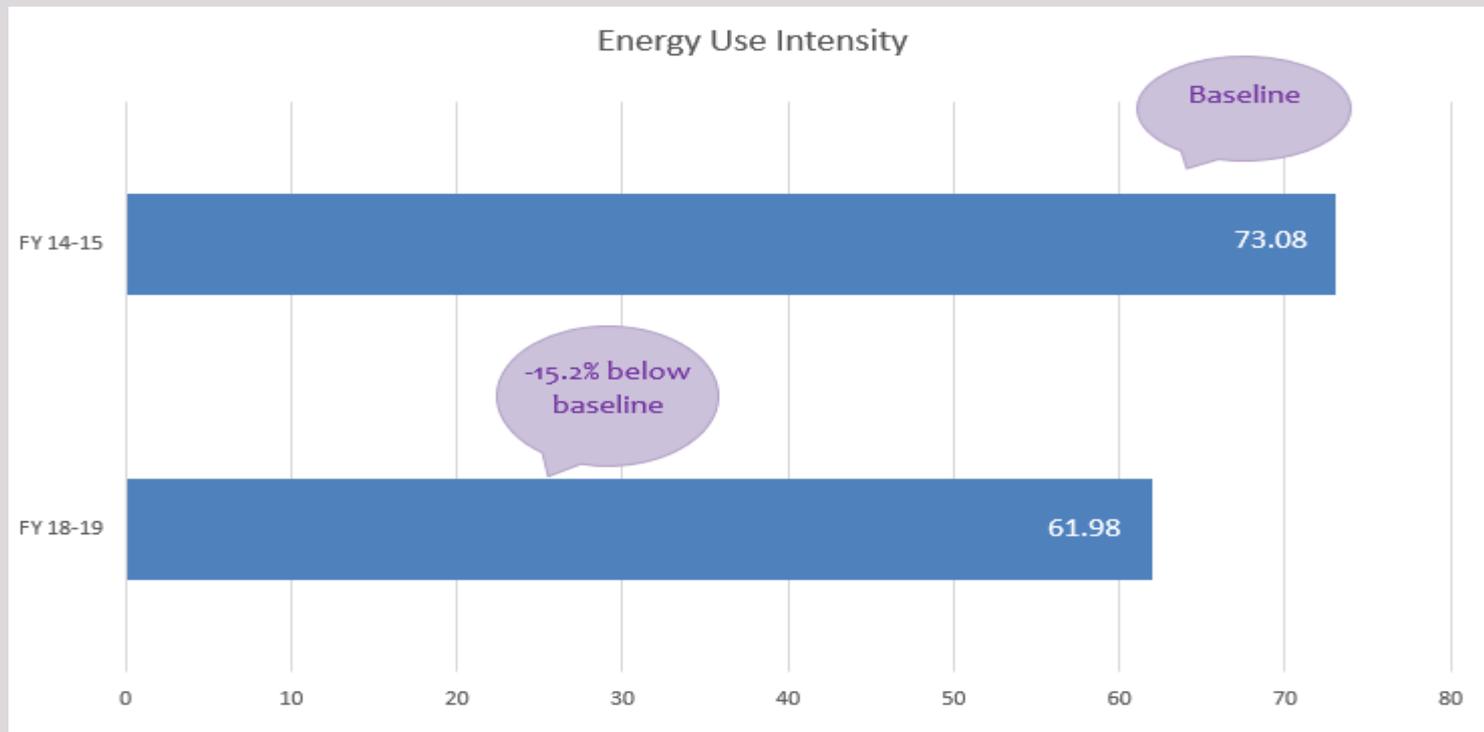


This Progress Report highlights significant accomplishments of each key focus area that were achieved during the Fiscal Year 2018-19, as well as disposition of projects in progress that are expected to be completed in Fiscal Year 2019-20.

# Energy Use – Energy Use Intensity

**GOAL: Reduce Energy Use Intensity by 10% comparing data from FY2019-20 against baseline data from FY 2014-15**

Energy Use Intensity (EUI) is the amount of energy used in a building per square foot. Through the implementation of energy efficiency improvement efforts such as the Zero Net Energy Portfolio Plan, retro-commissioning, Demand Response efforts, and Power Purchase Agreements, the County has **reduced its overall EUI by 15.2% since the baseline year of FY 2014-15.**



# Energy Use – Approaches

## Zero Net Energy Portfolio Plan (ZPP)

Opened two new award winning Zero Net Energy buildings in FY2018-19

- North Coastal Live Well Center
- Borrego Springs Library

## Retro-commissioning

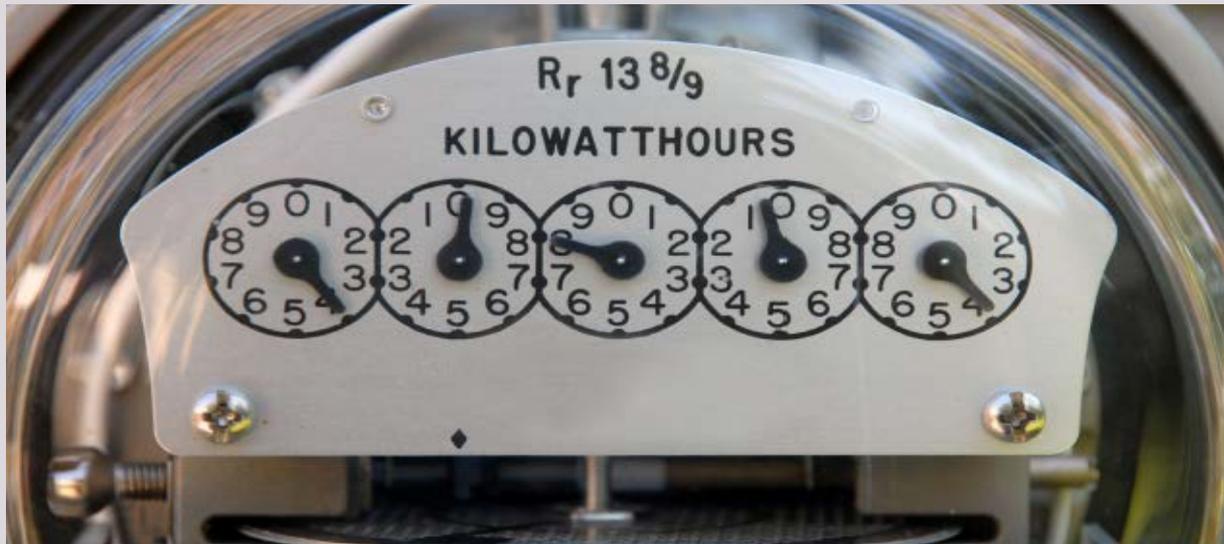
- Edgemoor SNF, annual savings of electricity 18% and natural gas 24%, with a simple payback period under 2 years

## Demand Response

The County Operations Center (COC) participates in SDG&E's Demand Response program which **helps curtail energy demand through temporary reductions in energy load during hot days**. A Demand Response event typically lasts for two to four hours and is controlled by the County's Centralized Building Automation System technology. The County participated in 17 events in the 2018 season.

## Power Purchase Agreements

- Installed 1.4 MW of photovoltaic power generation at the South Bay Regional Center
- Installed 104 kW of photovoltaic power generation at the Borrego Springs Library

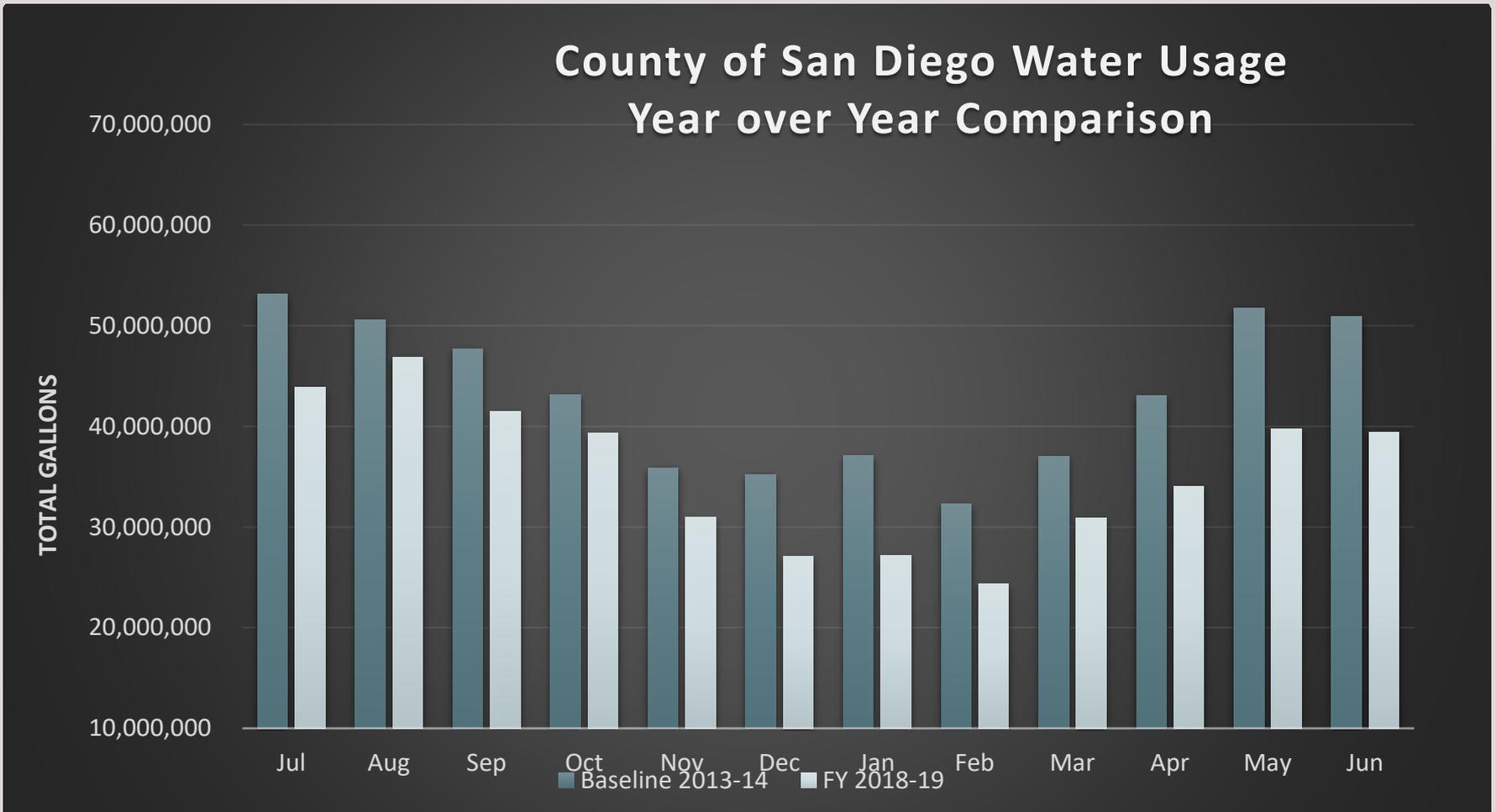


Analog electricity meter.

# Water Use – Reduction

**GOAL: Reduce potable water consumption by 25% comparing data from FY2019-20 against baseline data from FY2013-14**

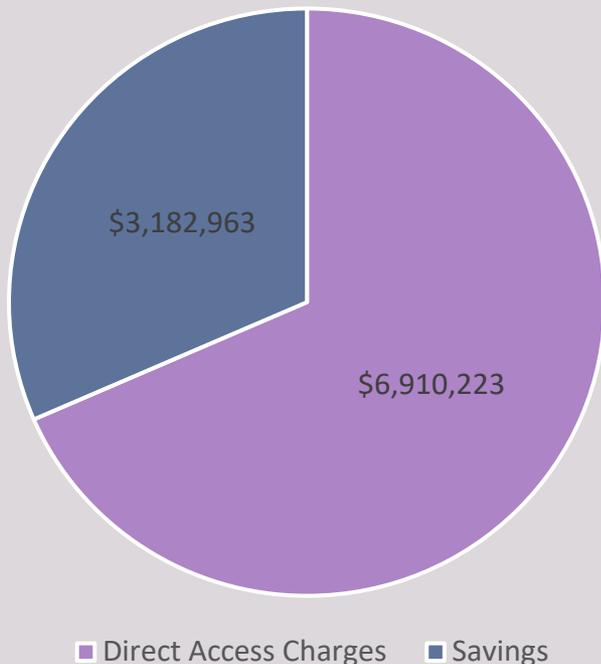
As of the end of FY2018-19, the County has reduced potable water use by an average of 18%



# Cost Avoidance – Direct Access Program

Goal: Realize cost avoidance and savings through energy and water savings opportunities and new technology

SDG&E Rate \$10,093,186



During CY 2018, the County avoided almost **\$3.2M** or about **31.5%** of the total annual County cost for purchasing electricity. This is compared to what costs would have been if the County purchased electricity directly from SDG&E.

# Cost Avoidance – Increasing our Renewables

**County aggressively pursues renewable power projects.** Power Purchase Agreements (PPA) are in place to install **11MW** at **8** County sites. Under these PPAs a 3rd party will own and operate these systems and the County will purchase the electricity, **saving over \$20 million in energy costs** over the full term of the agreement. 2 installations were completed in FY 2019-20, 2 were under construction, and the remainder are in design. One of these projects will include up to 500kW of battery storage.

\* up from 2.7% in 2018

	Current (2020)			Future (2030) Scenario A		
	kWh	Percent Renewable	Total Renewable kWh	kWh	Percent Renewable	Total Renewable kWh
<b>Purchased Electricity</b>	<b>112,027,113</b>			<b>92,982,504</b>		
SDG&E Bundled	5,923,205	45%	2,665,442			
SDG&E EcoChoice	7,924,115	100%	7,924,115			
CalPine	98,179,793	33%	32,399,332	81,489,228	60%	48,893,537
Future CCA				11,493,276	90%	10,343,948
<b>On-site Generation</b>						
Owned	2,049,554	100%	2,049,554	9,488,154	100%	9,488,154
PPA	9,549,451	100%	9,549,451	13,017,551	100%	13,017,551
<b>Total from All Sources</b>	<b>123,626,118</b>			<b>115,488,209</b>		
Total from Renewable Sources	54,587,894			81,743,190		
Percentage Renewable	44.16%			70.78%		
Total On-site Generation	11,599,005			22,505,705		
Percentage Renewable (On-site)	9.38%			19.49%		

# Transportation

Goal: Realize a 10% average reduction in greenhouse gas (GHG) emissions for all County owned vehicles comparing data from 2020 to baseline data from 2015.

Mobile combustion saw a 13% decrease of Co2e emissions in 2018 compared to 2015 baseline data. This decrease can be attributed to the increasing number of EVs and replacement of older less fuel-efficient vehicles.



Electric vehicle charging stations for fleet vehicles are now in operation at 10 County locations and the electric and plug-in hybrid vehicle fleet has been expanded from 34 to 40 vehicles.

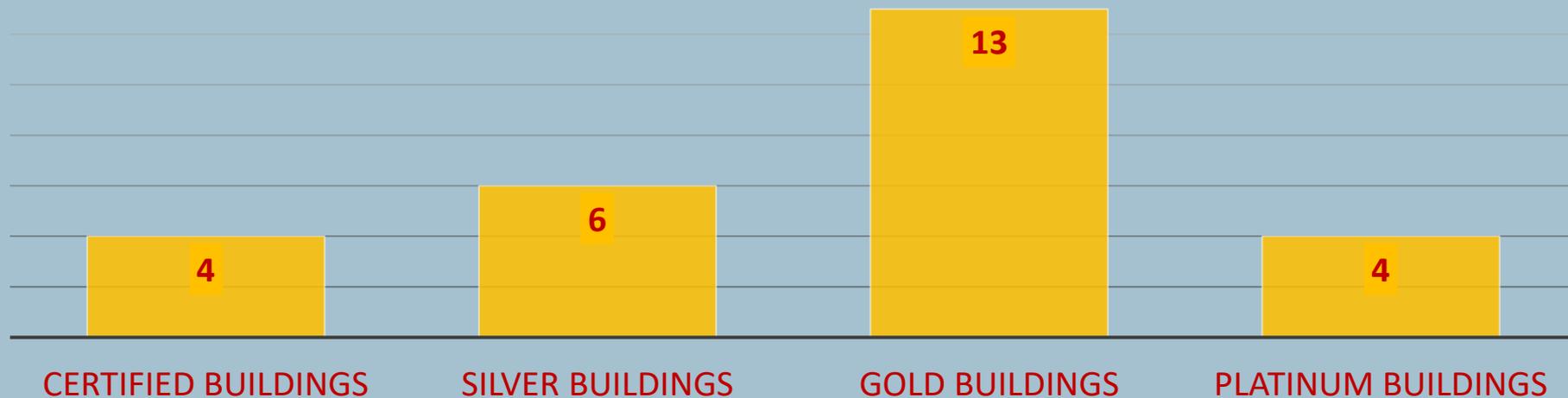
# Green Buildings & Infrastructure – LEED Buildings

The County's LEED cumulative certified square footage as of FY 2018-19 is 1,622,280

**There are 3 new facilities currently in the process for LEED certification and are expected to be Gold:**

- ARCC East County
- Santa Ysabel Nature Center
- Borrego Springs Library

## Number of Certifications Per Level



The County continues to participate in “Savings By Design” - This program offers engineering assistance to reach higher levels of energy efficiency in new construction design, and cash incentives for projects which achieve high energy efficiency.

Currently, the County is participating in Savings By Design at two properties:

- ARCC East County
- San Ysabel Nature Center

The rebate savings for these projects will be used to execute additional energy efficiency work at County facilities.

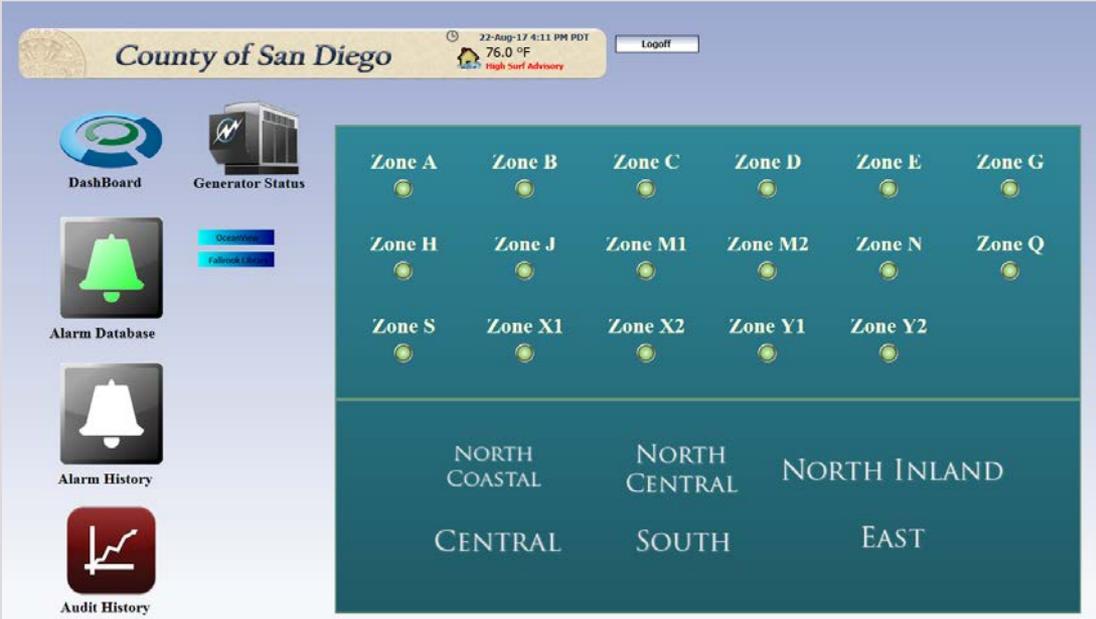


**Received \$150,000 for Sheriff's Crime Lab**  
**Received \$63,973 for North Coastal Live Well Health Center**  
**Received \$31,336 for Borrego Springs Library**

# Monitoring & Communication – Building Automation System

The County is continuing to deploy a centralized County-networked Building Automation System technology (BAS) which provides **the ability to remotely monitor and control** various building mechanical and utility systems. At some facilities where submeters are installed, it allows a view into how the building uses energy – efficiently or excessively.

BAS has been deployed at 44 sites, 162 facilities.

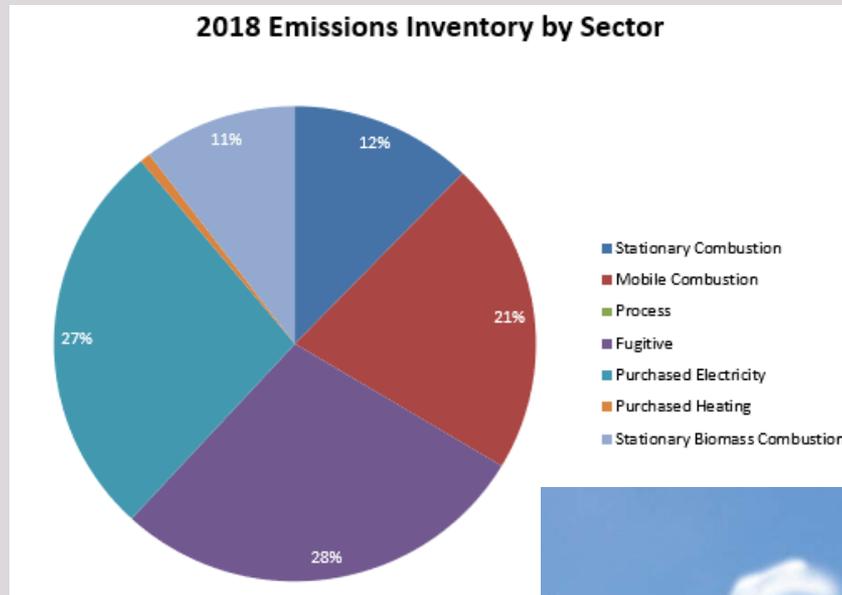
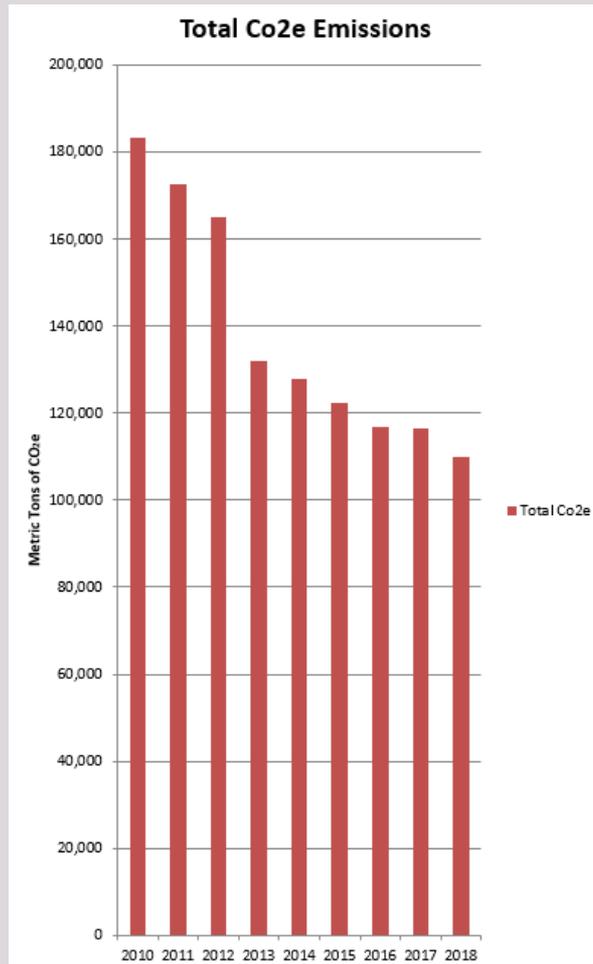


## CAC Plant Power Meter

Current Hour Total	Current Day Total	Current Week Total	Last Week Total	Current Month Total	Last Month Total	Current Year Total	Last Year Total		
Energy Delivered	Power Phase A	Power Phase B	Power Phase C	Voltage A-N	Voltage B-N	Voltage C-N	Current Phase A	Current Phase B	Current Phase C
2388494.0 kW-hr	95.2 kW	95.6 kW	90.6 kW	280.0 V	280.3 V	279.3 V	343.4 A	344.9 A	328.1 A
Power Factor	Power Factor A	Power Factor B	Power Factor C	Voltage A-B	Voltage B-C	Voltage A-C	Current Average	Frequency	Real Power
1.00	100.0 %	100.0 %	100.0 %	485.2 V	484.7 V	484.4 V	339.0 A	60.0 Hz	281.0 kW

# Monitoring & Communication – Greenhouse Gas Reduction

From 2017 to 2018, the County reduced greenhouse gas (GHG) emissions generated from internal operations by **6,592 Metric Tons of CO<sub>2</sub>e** (carbon dioxide equivalent). Our biggest reduction this year was in mobile combustion, which can be attributed to an increase in EV usage in our Fleet and more fuel-efficient vehicles. Since 2010, internal emissions have been reduced **40%**, which equates to **taking 15,593 passenger vehicles off the road.**



# Monitoring & Communication – Staff Engagement

During FY 18-19 General Services continued to implement its staff-oriented sustainability program. A series of educational events were held, including:

- Lighting Fairs at the COC and CAC offered discounted LED bulbs to County Staff
- Transportation events to support van and carpooling, and public transportation
- Bike to Work Day

## BIKE TO WORK 2019



To celebrate #TransitTuesday this month, MTS and Coca-Cola are giving out free Day Passes to 1,500 San Diegans!

Stop by for your chance to get a free Day Pass, then choose transit and share your experience on board using the hashtag #sharetheridesd.



# Waste Diversion Plan

April 2017, the Board of Supervisors was presented with the Strategic Plan to reduce waste. Acting on recommendations from staff, The Board directed the Department of General Services (DGS) to create a baseline diversion level and to develop a plan to achieve 75% diversion for internal operations. A 2018 Baseline was determined and a three-phase plan has been created and implementation is scheduled to begin FY20-21.

In addition, several departments at COC began participating in an on-campus breakroom composting program. Over 400 lbs of waste have already been diverted in this endeavor.

## Baseline (CY2018)

### County Facilities:

### Total Waste Landfilled, Diverted, and Generated (Tons per Year)

Material Stream (Tons)	Landfilled Materials	Diverted Materials	Total Materials	% Diverted
Hauler Waste	7,880	3,318	11,198	30%
Capital Waste	134	1,206	1,340	90%
Demolition Waste	8	6,121	6,129	100%
Fleet Waste	10	364	374	97%
Other	4,497	7,927	12,424	64%
<b>Total</b>	<b>12,529</b>	<b>18,936</b>	<b>31,465</b>	<b>60%</b>



# Community Update



The following efforts are a compilation of those completed during Fiscal Year 2018-19 & those underway for completion in Fiscal Year 2019-20

# Reduce Energy and Water Consumption

Goal: Reduce per capita energy use in the County communities by addressing energy efficiency in new construction, existing buildings, and water use.

The County of San Diego currently participates in five different Property Assessed Clean Energy (PACE) Programs that allow for the **financing of energy efficiency projects, water efficiency projects and renewable energy upgrades through their annual property tax bills.**

- Climate Action Plan Measure E-2.3: Install Solar Photovoltaics in Existing Homes, includes a supporting effort to continue to provide outreach and education to property owners on renewable energy system financing programs (such as PACE)
- The County of San Diego offers a PACE webpage to provide general information to the public:  
<https://www.sandiegocounty.gov/content/sdc/pace.html#>



# Promote Renewable Energy

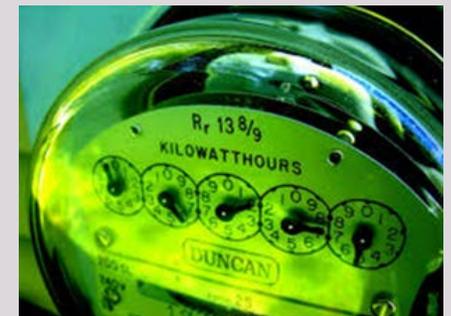
Goal: Facilitate development and use of renewable energy that is compatible with natural resources and community character.

In FY18-19 the County permitted **55,524** kilowatts of solar energy, saving approximately **24,765** Metric Tons of greenhouse gas emissions from entering the atmosphere.



County **Renewable Energy Permits** by the numbers:

- **6996** Residential Solar Permits, a **increase of 24%** from FY17-18
- **63** Commercial Solar Permits, an **increase of 80%** from FY17-18
- **568** Renewable Energy Other (Battery Back up)



# Transportation

Goal: Reduce demand for fossil fuel consumption and address vehicle emissions by reducing vehicle miles traveled and promoting alternative fuel vehicles.

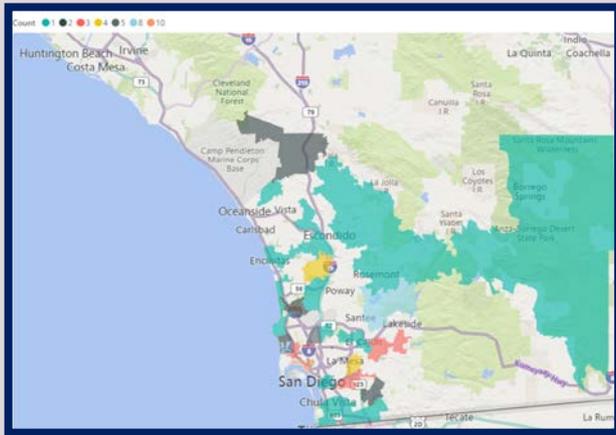
In 2015, the **County Building Code** was amended to require the installation of infrastructure to facilitate **electric vehicle charging stations** in all new single-family homes.



In FY18-19 the County permitted **83** electric vehicle (EV) charging stations, an **increase of 34%** from FY17-18.

# Education and Outreach

The Department of Parks and Recreation energy efficiency and outreach program focused on educating future and current rate payers. The team attended **69 events with an estimated 23,724 attendees.**



Efforts resulted in **265 referrals** for energy SDG&E energy saving programs, an 8% increase from the last reporting period.



The **Energy Saving Adventures** program reached **5,500** participants and published the first edition of **The Scene**, a teen's guide to **recreation and energy.**



DPR presented at the **Statewide Energy Efficiency Collaborative Forum** on best practices for **empowering youth** on how to build healthy, active and energy efficient communities.

County of San Diego Department of Parks and Recreation  
**EMPOWERING TEENS TO BUILD HEALTHY, ACTIVE AND ENERGY EFFICIENT COMMUNITIES**

**THE PROGRAM**  
Energy Saving Adventures (ESA) is a free, hands-on program designed for youth 16 to 19, teaching energy conservation, recycling and other energy performance topics. During a team project, students learn green environmental concepts.

**CORE PRINCIPLES**

- 1. ENERGY CONSERVATION**  
- Turn off lights and electronics when not in use.  
- Unplug chargers and electronics when not in use.  
- Use energy-efficient light bulbs (LED or CFL).  
- Use energy-efficient appliances.
- 2. ENERGY EFFICIENCY**  
- Use energy-efficient light bulbs (LED or CFL).  
- Use energy-efficient appliances.
- 3. ENERGY SAVING**  
- Turn off lights and electronics when not in use.  
- Unplug chargers and electronics when not in use.  
- Use energy-efficient light bulbs (LED or CFL).  
- Use energy-efficient appliances.

**SUCCESS STORIES**

- 4,126 plastic bottles = 10,316 Laptop hours
- 1,924 aluminum cans = 26,400 16-watt light bulb hours
- 362 glass bottles = 36,200 LED-watt light bulb hours
- 5,800 participants
- 20% of youth listed for DPR's Local Speed in 2018

**BEST PRACTICES**

- 1. AVOID LIGHTS**  
- Turn off lights when not in use.  
- Unplug chargers and electronics when not in use.  
- Use energy-efficient light bulbs (LED or CFL).  
- Use energy-efficient appliances.
- 2. ENERGY EFFICIENCY**  
- Use energy-efficient light bulbs (LED or CFL).  
- Use energy-efficient appliances.
- 3. ENERGY SAVING**  
- Turn off lights and electronics when not in use.  
- Unplug chargers and electronics when not in use.  
- Use energy-efficient light bulbs (LED or CFL).  
- Use energy-efficient appliances.

**LESSONS LEARNED**

- ROLE-PLAY** reinforces learning objectives.
- STUDENTS WHO REC-USE LEADERS** are more involved in activities and more likely to give feedback.
- STRATEGIC PARTNERSHIPS** bolster value of ESA. DPR partners impact on the community.

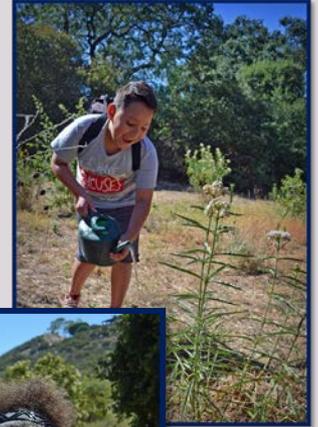
2011 2013 2014 2015

# Education and Outreach



DPR's **Discovery Kit Program** offered **FREE** outdoor education programs and nature excursions to approximately **6,800 students** in grades **K-6** through partnerships with approximately **40 local schools**.

DPR's **teen center** participants completed a total of **10 service-learning projects**, designed to help encourage sustainable practices such as **local community clean ups** and **tree planting**.



# Education and Outreach Recycling

Department of Public Works

Throughout FY2018-19, DPW has

- Conducted recycling education presentations to 21,342 students at 279 schools
- Worked with schools to implement lunch recycling programs to educate students on the importance of reducing waste, zero waste lunches, and how to sort their food waste and recyclables from the trash
- Offered technical assistance to 349 businesses and 155 multifamily complexes
- Provided 31 composting workshops and events for 3,290 attendees
- Held two Oil Filter Exchange events where 1,130 attendees recycled used oil filters for new ones and four tire recycling events where 193 participants recycled 1,991 tires



**San Diego Regional Energy Partnership:** The County continues to work with the Cities of San Diego and Chula Vista, SANDAG, the Port of San Diego, and SDG&E on Energy Efficiency Projects, including Green Real Estate Outreach, Zero Net Energy Webinars, the Energy Benchmarking Coach, and Residential Outreach.

**San Diego Regional Climate Collaborative:** The County collaborates with 24 regional public agencies to share expertise, leverage resources, and advance comprehensive solutions that facilitate climate change planning.

The San Diego Regional Climate Collaborative regularly engages in trainings raising the capacity, expertise, and leadership for public agency staff at no cost.



**MISSION**

The San Diego Regional Climate Collaborative is a network for public agencies that serve the San Diego region to share expertise, leverage resources, and advance comprehensive solutions to facilitate climate change planning.

By partnering with academia, non-profits, and businesses, we also work to raise the profile of regional leadership.

**August 2019:** The County released the first Climate Action Plan Annual Monitoring Report. Through the implementation of ten qualified measures in the CAP, the County reduced 103,635 MTCO<sub>2</sub>e of greenhouse gas emissions in 2018. This is an equivalent to saving enough energy to power an average of 118,112 US homes for one year! The report gives a status update on all 26 measures in the CAP and shows that the County is on track towards meeting its 2020 emissions target.

