

Santa Barbara County General Services Department

2014 Santa Barbara County
Sustainability Progress Report and
Zero Net Energy Resolution

March 4, 2014

Greg Chanis, Assistant Director



Staff Recommendation

- Receive and file the 2014 Sustainability Progress Report
- Adopt the Zero Net Energy Resolution
- As Board determines appropriate, provide staff direction regarding future Sustainability initiatives



Background

- State Directive: AB32 – 2006 Statewide effort to reduce greenhouse gas emissions
- County Directive: Resolution 09-059
 - 2010 Sustainability Action Plan
 - Countywide Energy and Climate Action Plan
 - SCE Grant Funded 2013 Energy Action Plan and Benchmarking Policy for County Facilities



Significant Sustainability Actions Since Release of 2010 Plan

- Completion of 2013 Energy Action Plan and Benchmarking Policy for County owned facilities
- Extended the empowerSBC program which makes home energy easier and more affordable to homeowners
- Completed 2 large scale solar projects generating a combined 2 MW of electricity annually.
- Continued work on Energy and Climate Action Plan for unincorporated areas of Santa Barbara County.



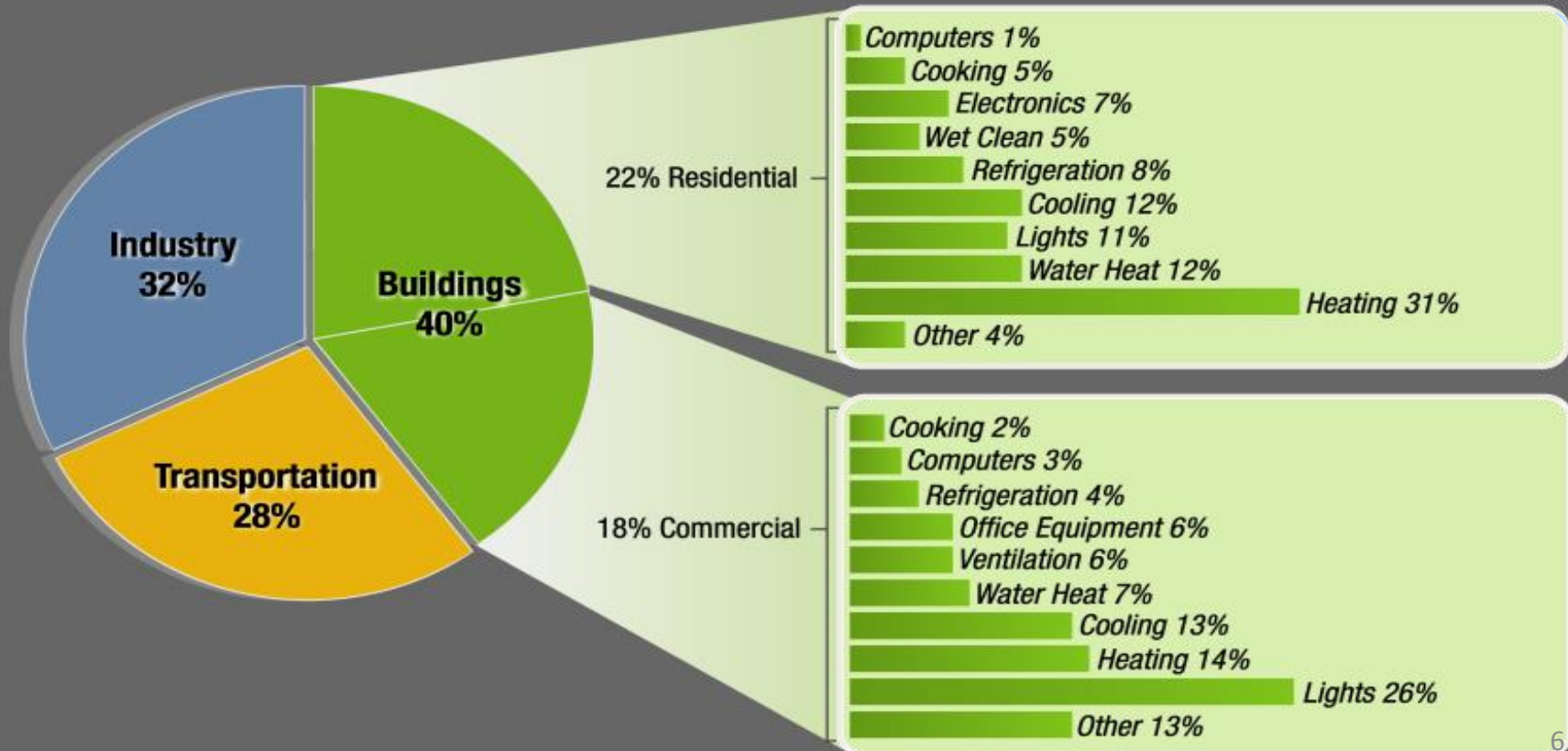
What Is A Zero Net Energy Building?

- A building that, on an annual basis, will consume as much energy as it produces from renewable sources, while maintaining an acceptable level of service and functionality
- Zero Net Energy (ZNE) buildings can exchange energy with the power grid as long as the net energy balance is zero on an annual basis



Why ZNE is Important?

Buildings are the Largest Energy Consumer in the U.S



4 BIG BOLD Energy Efficiency Strategies



Commercial New Construction

All new commercial construction in California will be zero net energy by 2030.



Residential New Construction

All new residential construction in California will be zero net energy by 2020.



Residential / Small Commercial HVAC

Heating, Ventilation, and Air Conditioning (HVAC) industry will be reshaped



Low-Income Energy Efficiency

All eligible low-income homes will be energy-efficient by 2020

Can We Reach ZNE?

- Assessment of the Technical Potential for Achieving Net Zero-Energy Buildings in the Commercial Sector

www.nrel.gov/docs/fy08osti/41957.pdf

- Methodology for Analyzing the Technical Potential for Energy Performance Across the Commercial Sector

www.nrel.gov/docs/fy08osti/41956.pdf



Zero Net Energy Resolution

“All new Santa Barbara County owned facilities and major renovations beginning design after 2025 be constructed as Zero Net Energy Facilities with an interim target for 50% of new facilities beginning design after 2020 to be Zero Net Energy. Santa Barbara County Departments shall also take measures toward achieving ZNE for 50% of the square footage of existing Santa Barbara County owned facilities by 2025 and the remaining 50% by 2035”



Concept Renewable Energy Transition Plan

- Phased approach to transitioning numerous existing County owned facilities to near ZNE.
- Utilizes a combination of Solar Photovoltaic (PV), Solar Thermal Collection and Small Wind Energy Turbines.



Phase 1 Project List

UTILITY NAME	ADDRESS	CITY	TOTAL ANNUAL KWH CONSUMED
PG&E	749 BURTON MESA BLVD,	LOMPOC	3,000
PG&E	HWY 1 MT SANTOS, HARRIS GRADE	LOMPOC	1,000
PG&E	3500 HARRIS GRADE RD	LOMPOC	24,000
PG&E	753 BURTON MESA BLVD # B	LOMPOC	143,000
PG&E	SWEENEY RD & HWY 154	LOMPOC	52,000
PG&E	2 MI N/HWY 154, &-LIVE-OAK-CAMP	SAN YNEZ	6,000
PG&E	LAKE CACHUMA PART 1	SAN YNEZ	42,000
PG&E	200 E FESLER ST STE 202	SANTA MARIA	6,000
PG&E	212 CARMEN LN STE 104	SANTA MARIA	11,000
PG&E	5800 BRADLEY RD	SANTA MARIA	35,000
PG&E	NOJOQUI PARK-ALISAL RD	SOLVANG	2,000
PG&E	FIRE STATION 166 HWY 246	SOLVANG	2,000
SCE	4415 CATHEDRAL OAKS RD	SANTA BARBARA	8,000
SCE	4417 CATHEDRAL OAKS RD	SANTA BARBARA	145,000
SCE	ARROYO BURRO BEACH	SANTA BARBARA	3,000
Total			483,000 ¹¹

Example of Preliminary PV Layout



Total Site Information
 Number of Modules = 70
 System Size = 15.5 KW AC (CEC)
 System Size = 17.5 KW DC (STC)

250W Solar World Solar Panels

BUILDING			
Roof	R1	R2	TOTALS
Square Footage	1,213 Sq.ft.	416 Sq.ft.	1,631 Sq.ft.
Number of Modules	52	18	70
Array size: CEC	11.5 KW	3.9 KW	15.5 KW
STC	13.3 KW	4.8 KW	17.5 KW
Azimuth / Tilt	174° / 10°	174° / 10°	-
Racking Type	-	-	-

LEGEND

 Solar panels mounted on roof.

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Project Title	1415 MISSION DR. SOLVANG, CA.
Sheet Title	ROOF TOP SOLAR LAYOUT
Scale	NOT TO SCALE

Project Number	-
Checked By	KEG
Drawn By	SF

Date	06-07-12
Reference Document	
Sheet Number	12

SBC Sustainability Efforts

- Transition to paperless environment
- Recycled paper when printing is necessary
- Recycling containers in all County facilities
- Lighting upgrades
- Videoconferencing vs. in person meetings
- Telecommuting when appropriate



County EV Drivers Training



ALL Electric Vehicle

After obtaining the keys from the Key Manager

Step #1 Walk around the vehicle to ensure there is no damage to the vehicle



Step #2 Unplug the charging cord from the vehicle, close the Vehicle's charging port door



Step #3 Secure the charging cord back on the station's plug port



Thank you for your interest in the County's new EV program



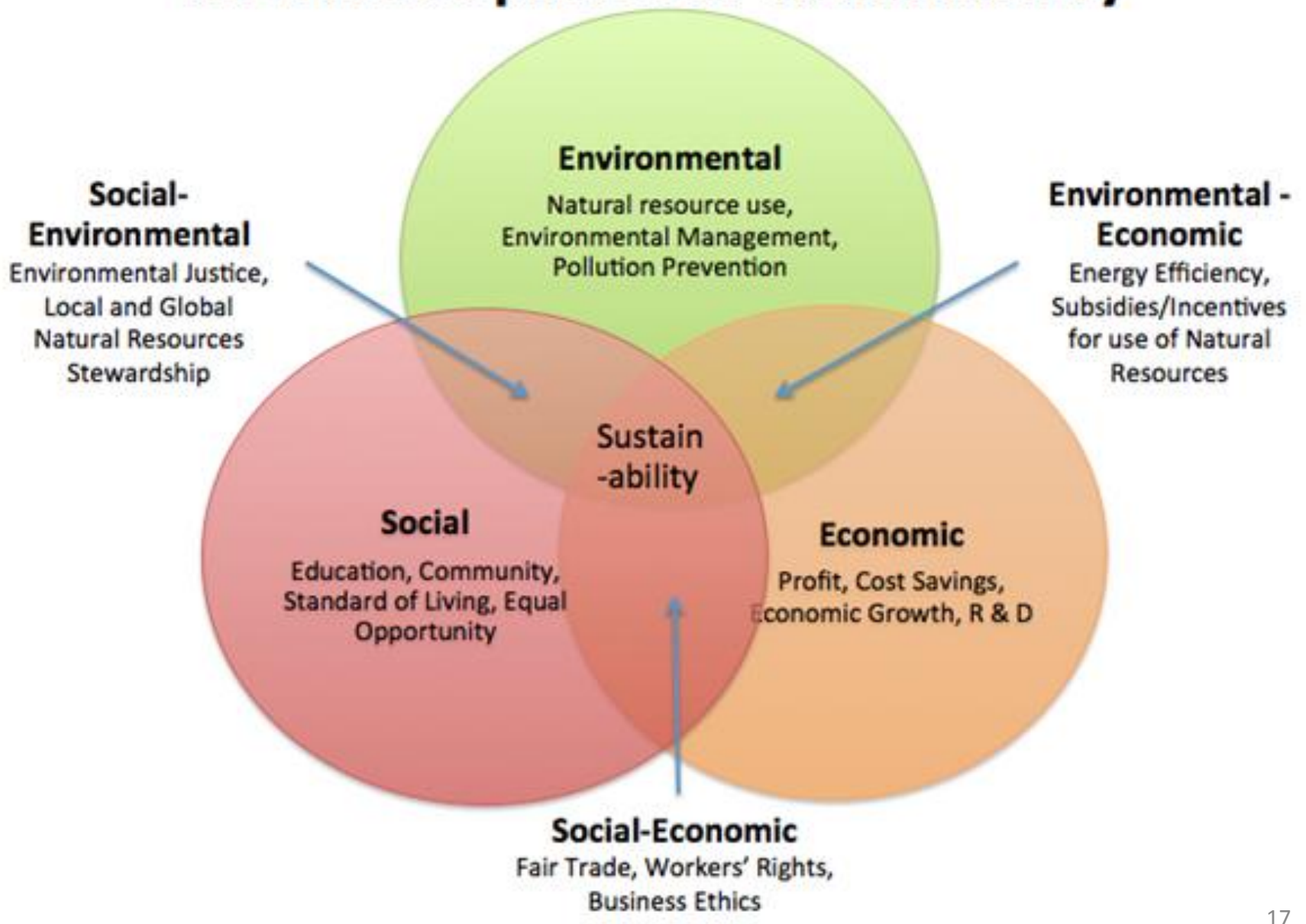
Electric Vehicles are now available for rental
at our downtown Admin and Calle Real
Campus Car Share sites

You are now an “Approved EV Driver”

Please allow General Services 24 hours to update your driver's
account



The Three Spheres of Sustainability



The STAR Community Rating System

Goal Areas & Objectives are mapped and rated in the online system, helping local leaders set goals and measure progress across areas.

Built Environment	Climate & Energy	Economy & Jobs	Education, Arts & Community	Equity & Empowerment	Health & Safety	Natural Systems
Ambient Noise & Light	Climate Adaptation	Business Retention & Development	Arts & Culture	Civic Engagement	Active Living	Green Infrastructure
Community Water Systems	Greenhouse Gas Mitigation	Green Market Development	Community Cohesion	Civil & Human Rights	Community Health & Health System	Invasive Species
Compact & Complete Communities	Greening the Energy Supply	Local Economy	Educational Opportunity & Attainment	Environmental Justice	Emergency Prevention & Response	Natural Resource Protection
Housing Affordability	Industrial Sector Resource Efficiency	Quality Jobs & Living Wages	Historic Preservation	Equitable Services & Access	Food Access & Nutrition	Outdoor Air Quality
Infill & Redevelopment	Resource Efficient Buildings	Targeted Industry Development	Social & Cultural Diversity	Human Services	Indoor Air Quality	Water in the Environment
Public Spaces	Resource Efficient Public Infrastructure	Workforce Readiness		Poverty Prevention & Alleviation	Natural & Human Hazards	Working Lands
Transportation Choices	Waste Minimization				Safe Communities	18

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