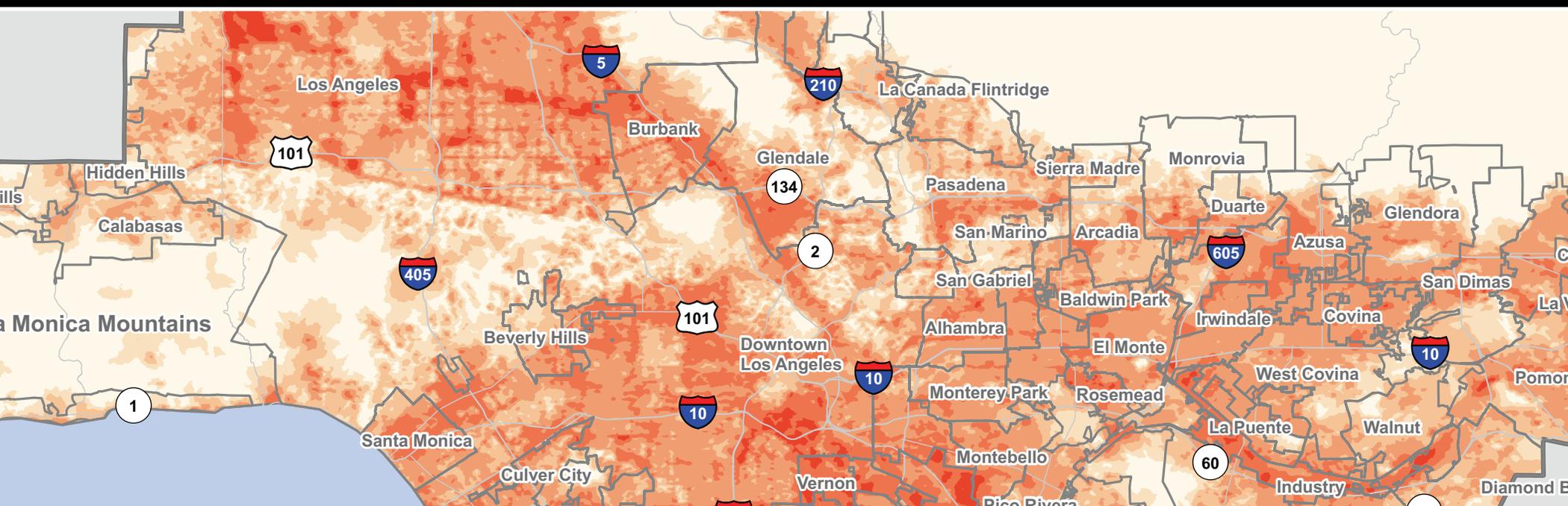


LOS ANGELES SOLAR AND EFFICIENCY REPORT (LASER): AN ATLAS OF INVESTMENT POTENTIAL IN LOS ANGELES COUNTY VERSION 2.0



LOS ANGELES SOLAR AND EFFICIENCY REPORT (LASER): AN ATLAS OF INVESTMENT POTENTIAL FOR LA COUNTY VERSION 2.0

INTRODUCTION

The Environmental Defense Fund commissioned the UCLA Luskin Center for Innovation to profile the potential for clean energy investments in Los Angeles County and sub-regions across Los Angeles County. The following LASER Atlas begins with a county level view of expected climate warming impacts, communities with high environmental health risk, solar rooftop potential and progress, and the landscape of polluting power plants. Following the county level profiles, sub-regional profiles illustrate the potential for clean energy investment at a finer scale. Themes presented at the sub-regional scale include climate change vulnerability, environmental health risk, rooftop solar potential and opportunities for energy efficiency investments.

OBJECTIVES

Each profile contained within this LASER Atlas is designed to help legislators and community stakeholders identify areas of high potential for solar energy and energy efficiency improvements in and on local buildings. The profiles also underscore the benefits of green economic investment. These benefits include capitalizing on incoming state and local funding while creating jobs and building community resilience to current environmental health and energy threats that climate change will exacerbate.

IMPORTANCE OF PROJECT

This project is timely because of new state funding opportunities that could benefit communities throughout Los Angeles County. The maps identify disadvantaged communities that could be prioritized for funding from cap-and-trade auction proceeds per SB 535 (de León), implementing legislation of AB 32 (Pavley), the California Global Warming Solutions Act. In addition, Proposition 39 will result in \$2.5 billion to improve energy efficiency and expand clean energy generation. The maps highlight likely recipients of Proposition 39 funding, including schools. Legislators and the Governor are responsible for determining specific allocations of these funds.

ENVIRONMENTAL DEFENSE FUND

Environmental Defense Fund's mission is to preserve the natural systems on which all life depends. Guided by science and economics, we find practical and lasting solutions to the most serious environmental problems. This has drawn us to areas that span the biosphere: climate, oceans, ecosystems and health. Since these topics are intertwined, our solutions take a multidisciplinary approach.

UCLA LUSKIN CENTER FOR INNOVATION

Established with a gift from Meyer and Renee Luskin, the UCLA Luskin Center for Innovation translates world-class research into real-world policy and planning solutions. Organized around initiatives, the Luskin Center addresses pressing issues of energy, transportation and sustainability. The Luskin Center is based in the UCLA Luskin School of Public Affairs.

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FOR MORE INFORMATION

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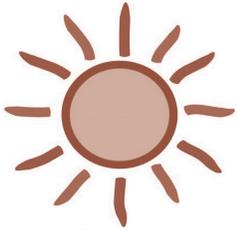
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A HOTTER REGION



4-5°F
temperature
rise will mean
that adaptation
is inevitable.

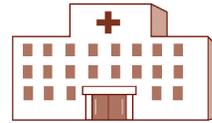
This map illustrates “Mid-Century Warming in the Los Angeles Region.” This is the first study to provide specific climate-change projections for the greater Los Angeles area, with unique projections down to the neighborhood level.¹

The study looked at the years 2041–60 to predict the average temperature change by mid-century. Southern Californians should expect slightly warmer winters and springs but much warmer summers and falls, with more frequent heat waves. The map shows that climate change will cause temperatures in the Los Angeles region to rise by an average of 4-5°F by the middle of this century.²

All areas across the Los Angeles region will experience warming in the coming mid-century but an important aspect of this study is that it shows where *different* areas will experience *different* degrees of warming. According to the study, coastal areas like Santa Monica and Long Beach are likely to warm an average of 3 to 4 degrees, with other areas experiencing more warming. The study predicts a likely tripling in the number of extremely hot days in the downtown area and quadrupling the number in the valleys and at high elevations.

Adapting to a changing climate and building resiliency will be inevitable in the Los Angeles region.

HOW THE LOS ANGELES REGION COULD ADAPT³



Higher temperatures will increase the importance of **energy efficient buildings**. Conservation and improved energy efficiency—with higher performing heating, ventilating and cooling systems, efficient lighting, etc.—will reduce the demand for energy, thus saving money for residents, owners and taxpayers. Producing **solar energy** on rooftops as well as retrofitting roofs to reflect sunlight (**cool roofs**), can also reduce electricity bills, while reducing emissions that contribute to climate change.

Municipal buildings can serve as **cooling centers**. This will be important because without this and other planning measures in place, hospitals will likely see an increase in patients suffering from heat stroke and heat exhaustion, as well as smog-related respiratory effects. Air quality is profoundly affected by higher temperatures because heat increases ozone smog formation. Ozone is a known lung irritant associated with asthma attacks, pneumonia and other respiratory diseases.

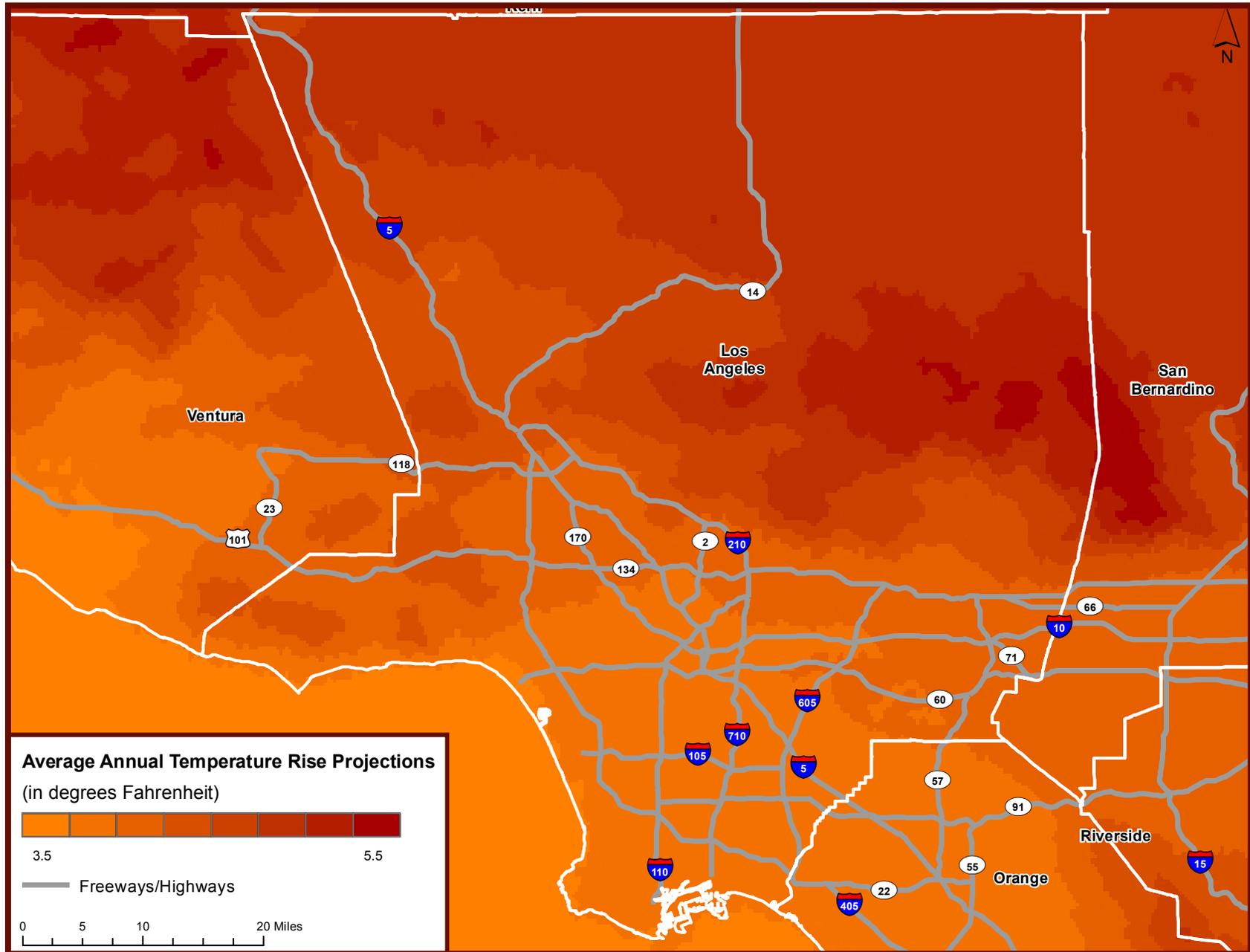
Green spaces and trees reduce the heat island effect caused by buildings and streets, and provide a place for people to cool off. Transit provides transportation access to parks, medical care and other services that can improve community resiliency to climate change.

1 Alex Hall, Fengpeng Sun, Daniel Walton, et al, 2012. “Mid-Century Warming in the Los Angeles Region.” University of California, Los Angeles. *See reference page for more details.*

2 Ibid. *See reference page for details about the uncertainty ranges and methodology.*

3 Adapted from the “C-Change-LA” website. Written and published by Climate Resolve. *See reference page for more details.*

MID-CENTURY WARMING IN THE LOS ANGELES REGION



Source: Alex Hall, Fengpeng Sun, Daniel Walton, et al, 2012. "Mid-Century Warming in the Los Angeles Region." University of California, Los Angeles. Full report at <http://c-change.la/>. See footnote 2, on reference page, for information about the uncertainty ranges and other details.

ENVIRONMENTAL HEALTH RISK AND INVESTMENT POTENTIAL



50% of Californians who live in a disadvantaged community are residents of LA County.

This map illustrates the screening tool that the State of California developed to identify communities disproportionately burdened by and vulnerable to multiple sources of pollution. Called the “California Communities Environmental Health Screening Tool 2.0” (CalEnviroScreen 2.0), it generates environmental health risk scores and rankings for census tracts throughout the state, incorporating data from 19 indicators within two categories: 1) pollution burden, exposure and environmental effect indicators; and 2) population characteristics, sensitive populations and socioeconomic factor indicators. High rankings indicate relatively high vulnerability. The map zooms into LA County, a region that faces elevated levels of environmental health vulnerabilities but should commensurately benefit from resources to address these issues.

Here’s why: CalEnviroScreen will inform the State’s identification of disadvantaged communities pursuant to **Senate Bill 535 (SB 535)**. SB 535 requires that at least 25 percent of monies from the **Greenhouse Gas Reduction Fund** be directed to projects that benefit disadvantaged communities and at least 10 percent of program funding expended be directed to projects located in disadvantaged communities. With revenue from the State’s cap-and-trade program, the Greenhouse Gas Reduction Fund is expected to soon generate billions of dollars every year for projects that reduce greenhouse gas emissions, create jobs and produce other co-benefits.

GHG REDUCTION FUND IS AN IMPORTANT OPPORTUNITY FOR LA COUNTY

Just one county, LA County, is home to 50 percent of all Californians who live in a census tract likely to be identified as a disadvantaged community for purposes of implementing SB 535. In fact, 38 percent of LA County residents (3.7 million people) live in one of these communities that could be eligible for prioritized allocations from the Greenhouse Gas Reduction Fund.⁴ At the time of publication, the State had not officially determined the “disadvantaged community” threshold, but it is likely that the top 20 percent of communities ranked by CalEnviroScreen 2.0 would be classified as such. The aforementioned numbers use this threshold while the map outlines with light grey lines the top 10 percent of communities. This map and others in the series can help decision-makers and community members think about where and what to invest in to reduce pollution, expand clean energy generation, and create jobs.

ELIGIBLE INVESTMENTS FROM THE GHG REDUCTION FUND



Sustainable Transportation

- Sustainable Communities Strategies: including public transit, rail modernization and system integration, transit-oriented development, and active transportation.
- Low-carbon Freight Equipment and Zero-Emission Passenger Transportation: includes vehicles and fueling/charging infrastructure.



Energy Efficiency and Clean Energy

- Residential: weatherization retrofits for low-income households, energy efficiency and clean energy financing, and solar incentive programs for low-income dwellings.
- Public: water system and use efficiency, such as in water pumping/conveyance.
- Industrial/Agricultural: energy efficiency improvements.

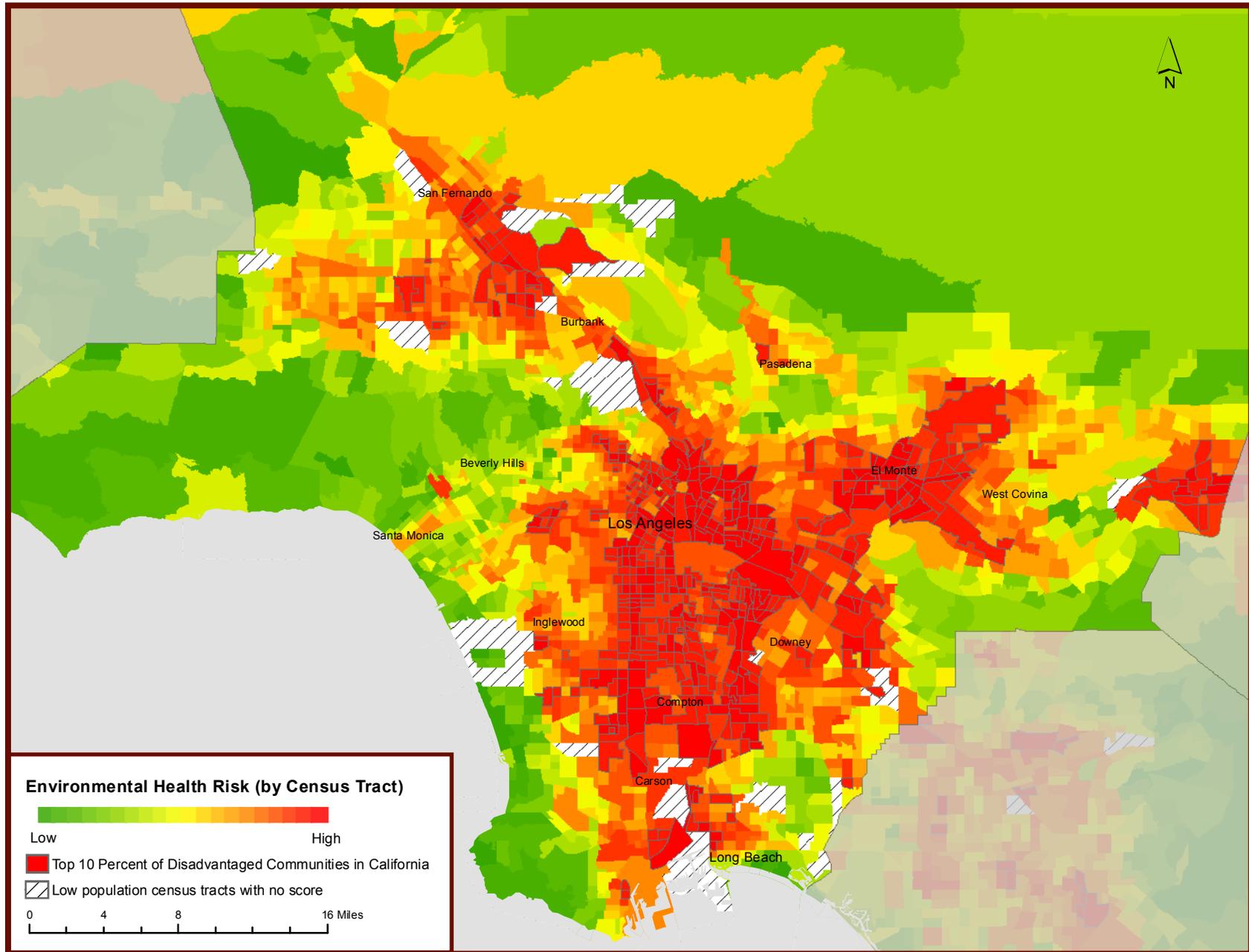


Natural Resources and Waste Diversion

- Forests and Ecosystem Management: urban forestry and other practices to sequester carbon and reduce black carbon.
- Waste Diversion: reduction and recycling strategies.

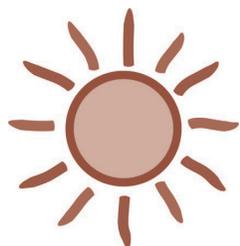
⁴ Derived from the “California Communities Environmental Health Screening Tool Version 2.0” (2014), developed by the California Environmental Protection Agency and the Office of Environmental Health Hazard Assessment. <http://oehha.ca.gov/ej/ces2.html>.

ENVIRONMENTAL HEALTH RISK IN LOS ANGELES COUNTY



Source: California Environmental Protection Agency and the Office of Environmental Health Hazard Assessment, "California Communities Environmental Health Screening Tool Version 2.0" (2014). <http://oehha.ca.gov/ej/ces2.html>. For the purpose of this report, the highest scoring 10% of census tracts are identified as disadvantaged communities and are delineated with a grey border and red color.

SOLAR POTENTIAL IN LA COUNTY IS TREMENDOUS



47,780
job years could
be created if
10% of rooftop
solar in LA
County was
realized.

This map illustrates that Los Angeles County is endowed with both bountiful sunshine and vast expanses of urban development that offers valuable siting opportunities for distributed solar energy generation. Los Angeles County has over 19,000 megawatts (an estimated 19,113 MW) of rooftop photovoltaic potential spread out across the county (see map and map source).

We are only beginning to tap into this tremendous solar resource. Los Angeles County is currently leaving around 97 to 98 percent of its solar capacity untapped.⁵ Reaching just 10 percent of its solar potential could create approximately 47,780 job years and reduce nearly 2.5 million tons of carbon dioxide annually, the equivalent of taking almost 500,000 cars off the road.⁶

MAP STATISTICS	Total Rooftop Solar Potential	19,113 megawatts	Single Family Sites (not sq. footage)	77%
	Median Rooftop Availability	17.6%	Multi-unit Residential Sites	15%
	Median Potential of Available Parcels	4.1 kilowatts	Commercial & Industrial Sites	7%
	Total Potential Sites	1,481,814 rooftops	Government & Non-profit Sites	1%

FUNDING OPPORTUNITIES

Often driven by State policies, local utilities provide financial incentives for solar investments. A key incentive throughout California is **Net Energy Metering**, in which utility customers receive credit for the electricity generated by the solar system on their rooftop, thereby reducing their electricity bills. In addition, **the California Solar Initiative (CSI)** is the solar rebate program for Californians that are customers of an investor-owned utility, such as Southern California Edison. CSI incentives include rebates on solar photovoltaics and other solar thermal generating technologies. Publicly-owned utilities offer a variety of incentive programs, the details of which are often unique to the utility. This includes the Los Angeles Department of Water and Power's **Feed-in Tariff**, in which the utility pays participating property owners for solar energy generated.

Other state policies that expand opportunities for solar include Proposition 39's **Clean Energy Job Creation Fund** as well as AB 32's **Greenhouse Gas Reduction Fund** (cap-and-trade auction proceeds). Stakeholders throughout Los Angeles County will have to be vigilant to maximize benefits of these opportunities locally.

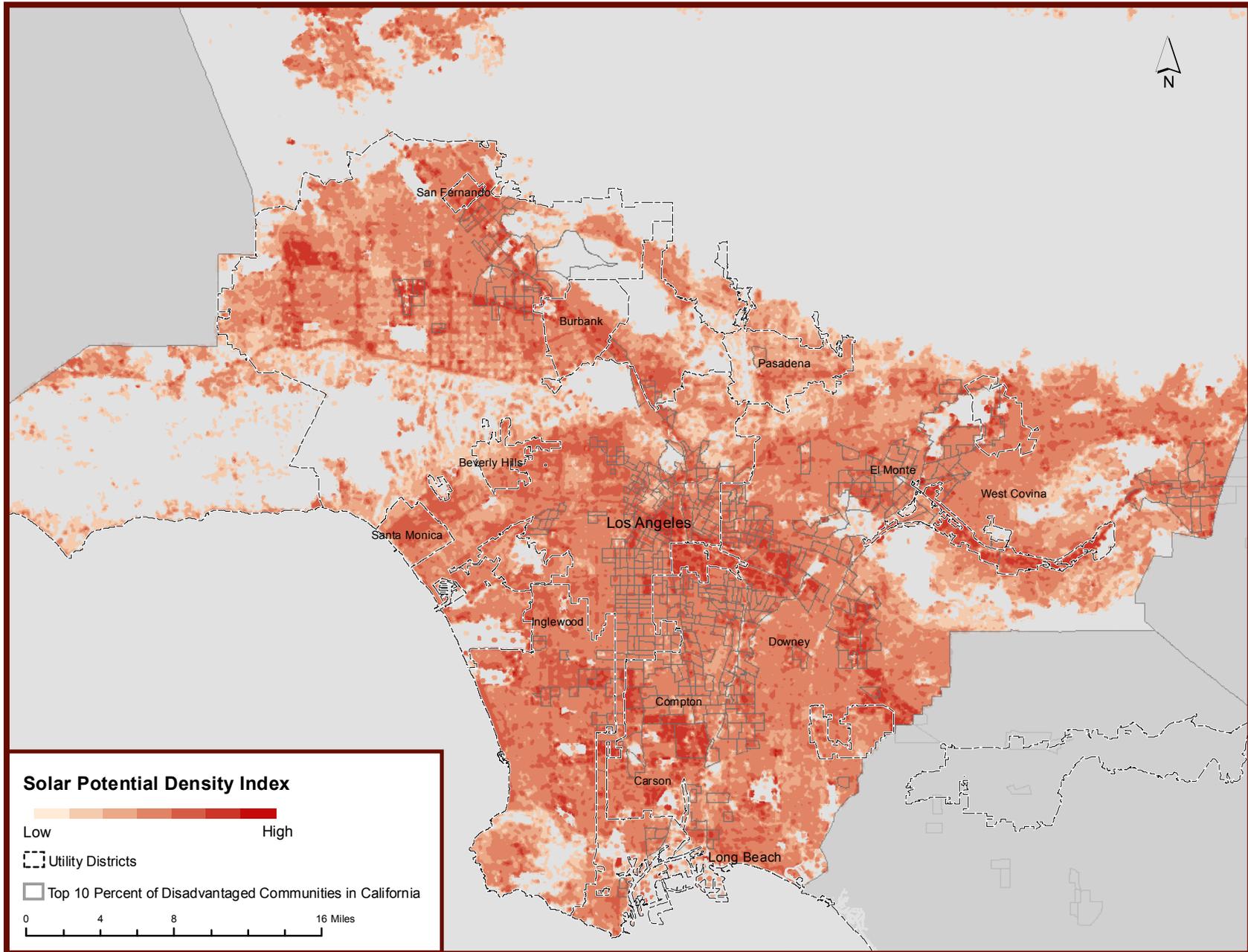
A **federal investment tax credit (ITC)** is also available for both residential and commercial consumers who install photovoltaics or solar water heating systems. For eligible solar systems placed in service on or before December 31, 2016, both business taxpayers and residential taxpayers are eligible for a credit equal to 30% of the expenditure.⁷

⁵ Derived from an estimated 400 MW of total installed solar capacity in the utility service areas encompassing the vast majority of LA County: Los Angeles Department of Water and Power territory (approximately 200 MW) and the Southern California Edison territory (approximately 200 MW). Source: State of California, California Energy Commission & California Public Utilities Commission, "California Solar Statistics" website (accessed on May 8, 2014). http://www.californiasolarstatistics.ca.gov/current_data_files/ Additional source: Los Angeles Department of Water and Power, "Feed-in Tariff Program" presentation to the Board of Water and Power Commissioners meeting, May 6, 2014. According to UCLA Luskin Center's "Los Angeles Solar Atlas," LA County has 19,113 MW of rooftop solar potential. Based on these available sources, about two percent of LA County's solar capacity has been realized but this could be closer to three percent. See page 10 for details.

⁶ Job multiplier derived from the US Department of Energy, "SunShot Vision Study" (2012). Carbon dioxide equivalent estimates derived from the US Environmental Protection Agency, "Emissions & Generation Resource Integrated Database." <http://www.epa.gov/cleanenergy/energy-resources/calculator.html>. This calculator may overestimate the reductions of carbon dioxide equivalent for the LA region, where the electricity generation fuel mix is cleaner compared to the national average. The numbers are used for discussion rather than policy purposes. See reference page for more details.

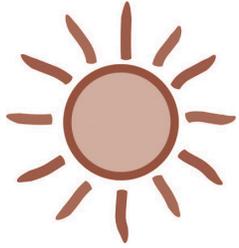
⁷ US Department of Energy, "Database of State Incentives for Renewables & Efficiency" website (accessed May 14, 2014). <http://www.dsireusa.org/incentives/index.cfm?state=us>

SOLAR ROOFTOP POTENTIAL IN LOS ANGELES COUNTY



Source: UCLA Luskin Center, "Los Angeles County Solar Atlas" (2011). UCLA used and modified data from the Los Angeles County Chief Information Office, the Los Angeles County Solar Map. <http://solarmap.lacounty.gov>. Disadvantaged communities are outlined in grey lines and identified per California Environmental Protection Agency and the Office of Environmental Health Hazard Assessment, "California Communities Environmental Health Screening Tool Version 2.0" (2014). <http://oehha.ca.gov/ej/ces2.html>.

SOLAR INSTALLATIONS IN LOS ANGELES COUNTY



Los Angeles County has the largest amount of installed local solar capacity of any county in California. Within LA County, there is more than 200 megawatts of solar capacity in the Southern California Edison (SCE) service area and approximately 200 megawatts in the Los Angeles Department of Water and Power service areas, for a total of more than 400 megawatts.⁸ This is an under-representation because the 400 megawatts number does not include data from all of the municipal utility territories in LA County. In addition, the SCE data only includes the solar installations for which there was an application to receive an incentive from the California Solar Initiative. Some property owners install solar projects without applying for an incentive.

#1
LA County has the largest amount of installed solar capacity in California.

DISADVANTAGED COMMUNITIES ARE BENEFITING FROM SOLAR

The following map illustrates the number of solar installations in disadvantaged communities within the SCE service area in LA County. The data source is the California Solar Initiative. Only investor-owned utilities participate in the full CSI program, thus the data is focused on the SCE territory and does not include data from the municipal utilities in LA County, including the Los Angeles Department of Water and Power. In LA County's SCE territory, over 1,400 solar systems are located on rooftops in disadvantaged communities.⁹ These numbers indicate that real progress is being made to bring solar to affordable housing.

FINANCIAL PROGRAMS ARE INCENTIVIZING SOLAR FOR AFFORDABLE HOUSING, BUT DO NOT EXIST EVERYWHERE

Two statewide programs funded by the California Solar Initiative focus on stimulating the adoption of solar power for affordable housing in California's investor-owned utility districts. The Single-family Affordable Solar Housing (SASH) and Multi-family Affordable Solar Housing (MASH) programs provide financial incentives to owners of low-income residential housing. In LA County alone, the SASH program has supported about 400 solar installations in low-income communities. And almost 50 solar projects on low-income multi-family dwellings in Los Angeles County have been supported by the MASH program, according to the CSI database.

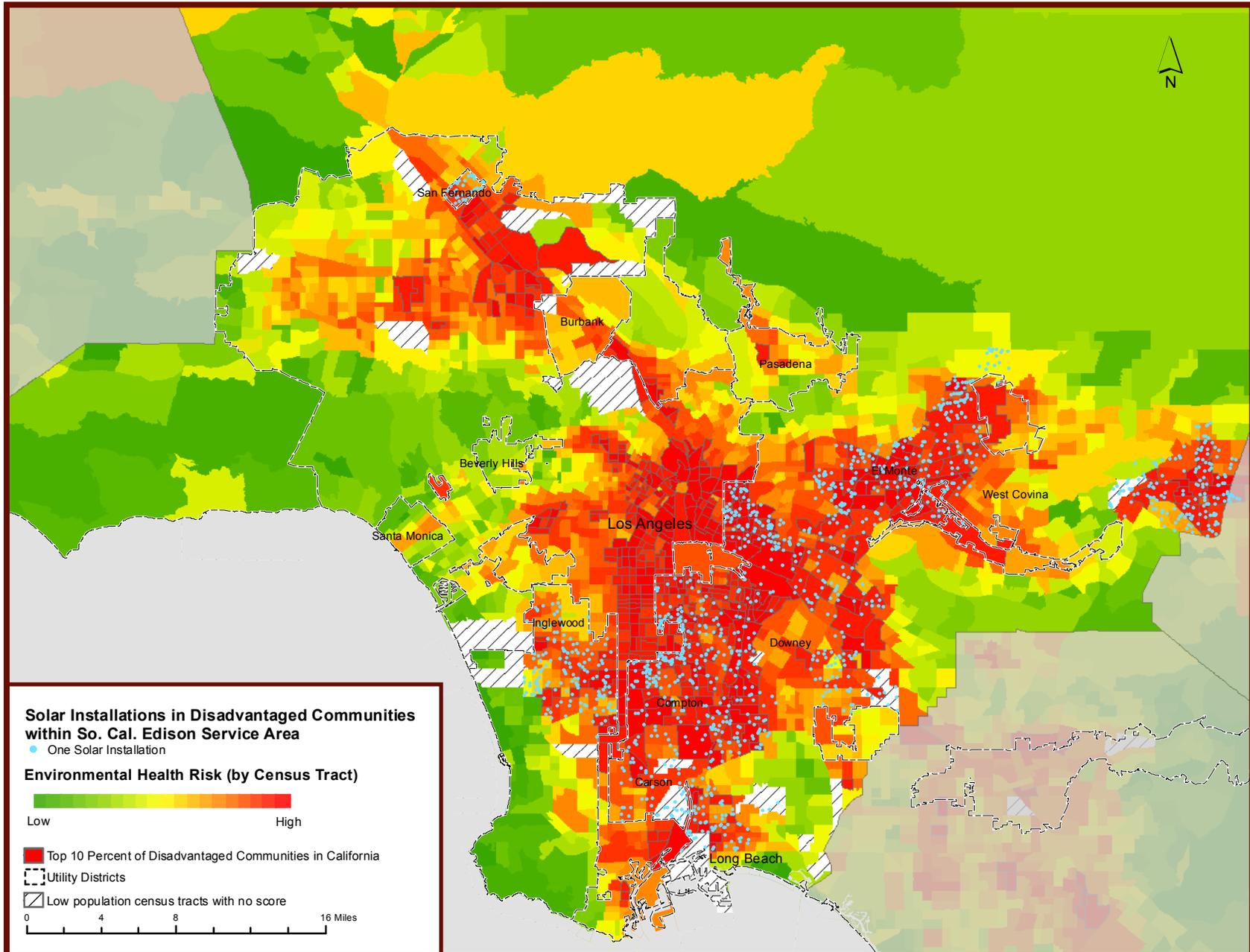
By offering financial incentives for solar projects in the affordable housing sector, these programs are improving energy utilization and overall quality of affordable housing, decreasing electricity usage costs without increasing monthly household expenses for affordable housing occupants, and increasing awareness of the benefits of solar power for affordable housing occupants and developers.

The MASH and SASH programs do not exist in municipal utility service territories. Instead, the municipal utilities offer other incentive programs. An important example is the Feed-in Tariff (FiT) program offered by the Los Angeles Department of Water and Power. This program is designed to tap into the fact that Los Angeles has both bountiful sunshine and multifamily housing, office, commercial and industrial rooftops.

⁸ "California Solar Statistics" website, operated by the State of California, California Energy Commission & California Public Utilities Commission (accessed on May 8, 2014). http://www.californiasolarstatistics.ca.gov/reports/locale_stats/ Addition source: Los Angeles Department of Water and Power, "Feed-in Tariff Program" presentation to the Board of Water and Power Commissioners meeting, May 6, 2014.

⁹ The number of solar installs in disadvantaged communities is estimated by comparing the California Solar Initiative (CSI) incentive solar project application database with the CalEPA CalEnviroScreen tool. The CSI data is aggregated to the zip code level to respect the privacy of solar incentive applicants. We then use CalEnviroScreen 1.1 (2013) because this tool is also at the zip code level. CalEnviroScreen 2.0 (2014) is at the census tract level. For the purpose of this map, we combined CalEnviroScreen 1.1 and 2.0. *See reference page for sources.*

SOLAR IN DISADVANTAGED COMMUNITIES: SCE TERRITORY IN LA COUNTY



Source: "California Solar Statistics" website, data exported from the California Solar Initiative (CSI) incentive solar project application database (accessed January 29, 2014). http://www.californiasolarstatistics.ca.gov/current_data_files/. This map represents solar installations in disadvantaged communities in So. Cal. Edison territory. The resulting dot density map represents one install with one dot, randomly distributing the dots within their corresponding zip code boundaries. For further detail on mapping methodology, please see footnote 9.

THE LOCAL SOLAR GENERATION AND CLEAN AIR CONNECTION



Residents and businesses in Los Angeles County are benefitting from solar on their rooftops through reduced energy bills. What is less known, however, is the benefit to those without a solar system on their roof. The connection between local air quality and local generation of renewable energy is complex but worth exploring.

Local solar generation may reduce air pollution impacts in the Los Angeles Basin. This could result in cleaner air for disadvantaged communities that are often located near polluting power plants, as illustrated in the following map. Here's how:

ROOFTOP SOLAR ENERGY CAN REDUCE TOTAL PEAK POWER DEMAND, AND THE NEED TO FULLY OPERATE LOCAL POLLUTING POWER PLANTS

Widespread installation of rooftop solar energy systems and energy efficient technology by homeowners and businesses can reduce the total peak power demand from the grid in the Los Angeles basin. This then reduces the need to operate local fossil fuel power plants at full capacity.

Los Angeles County is uniquely situated to benefit from the installation of local solar energy systems. The Los Angeles basin is designated as a transmission constrained “local area” by California’s Independent System Operator, the organization that controls the central electricity grid in most of the state.¹⁰ This “local area” designation means that the electricity grid in the LA basin has system-level constraints that limit the importation of power over transmission lines from other regions of the state. Under peak demand conditions, the central transmission grid may not be able to import all the power demanded by consumers within the LA basin.

To operate the grid safely and mitigate the risk of power shortages within the LA basin, the grid operator requires that enough power generation capacity be available within the local area to meet the expected peak demand. The vast majority of this local need is currently met with local fossil fuel power plants that emit not only greenhouse gas emissions but also particulate matter and other pollutants linked to adverse health effects for people exposed.

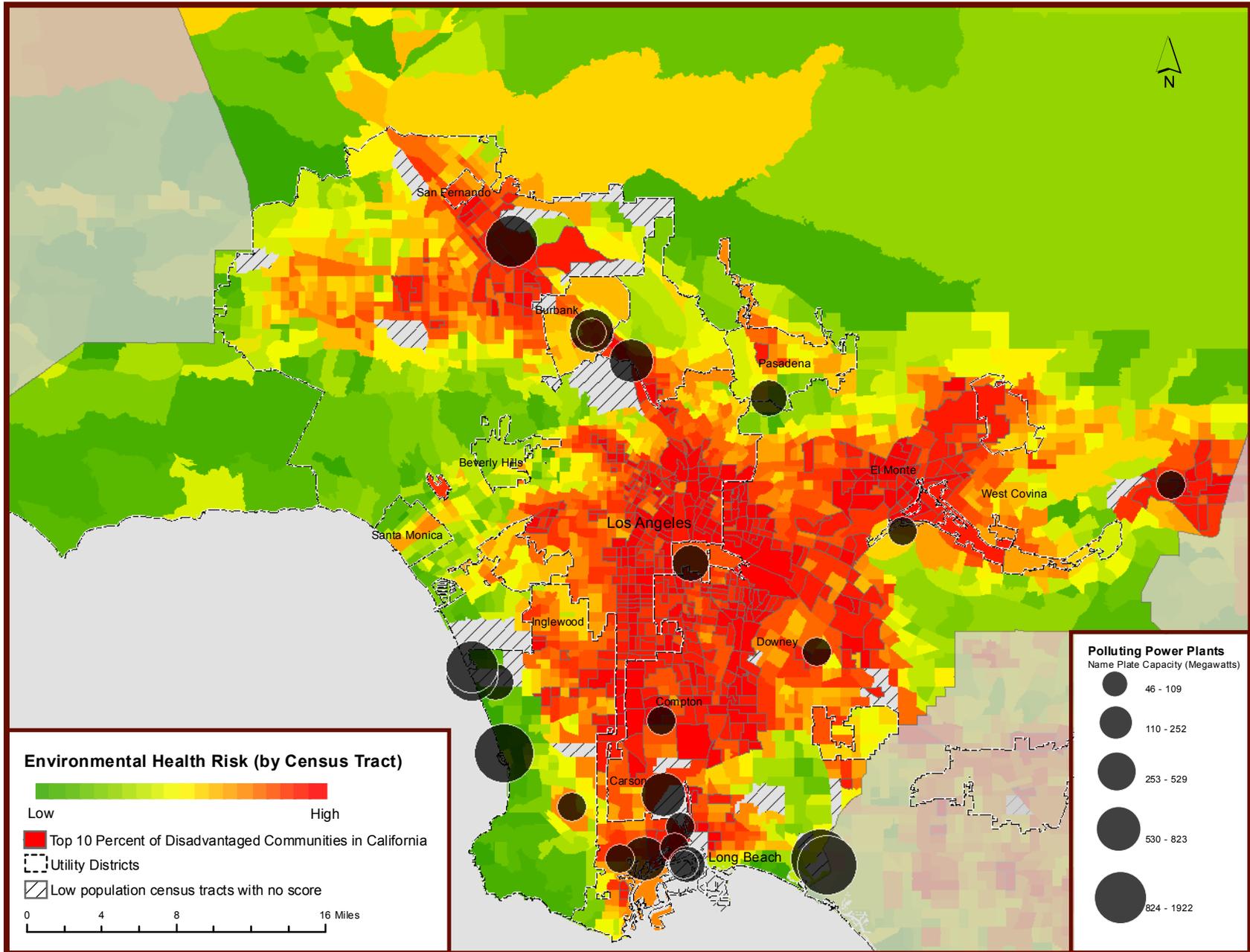
As homeowners and businesses in the Los Angeles region install solar energy systems and conserve energy to reduce greenhouse gas emissions and lower their utility bills, they also help to clean up local air pollution and reduce health risks.

**All 10
million
residents of
LA County are
exposed to high
levels of ozone
and particulate
pollution,
with higher
concentrations
near pollution
sources.¹¹**

¹⁰ California Independent System Operator, “2014 Local Capacity Technical Analysis” (accessed March 8, 2014). http://www.caiso.com/Documents/Final2014LocalCapacityTechnicalStudyReportApr30_2013.pdf. For a map, see California Energy Commission, “California Energy Maps,” (accessed March 10, 2014). http://www.energy.ca.gov/maps/reliability/LCR_Southern.html, or see the “2012 Local Capacity Technical Analysis” <http://www.caiso.com/Documents/2012FinalLCRManual.pdf>.

¹¹ American Lung Association, “State of the Air 2014” (2014). This report ranked Los Angeles-Long Beach as the most polluted in the nation for ozone (smog) and the third most polluted for year-round particulate matter 2.5, giving LA County a failing grade due to unhealthy pollution levels for at least part of year. The report uses recent quality-assured air pollution data, collected by federal, state and local governments and tribes in 2010, 2011, and 2012.

POLLUTING POWER PLANTS IN LOS ANGELES COUNTY



Source: U.S. Environmental Protection Agency, "Emissions & Generation Resource Integrated Database" (2010), (accessed on February 25, 2014).
<http://www.epa.gov/cleanenergy/energy-resources/egrid/>.

CLEAN ENERGY INVESTMENT POTENTIAL: SUB-REGIONAL PROFILES

A previous spread illustrates that climate change adaptation and resiliency will be necessary in Los Angeles County. Expanding renewables and energy efficiency is a key pathway to building community resiliency to extreme weather, energy and economic challenges.¹²

- Transitioning to renewables can achieve greater energy independence, protect communities from price spikes and ensure more reliable power during heat waves and other disruptions, while creating new jobs in the process. Solar panels will capitalize on an increasing number of sunny, hot days in Los Angeles County, an area that already has tremendous solar capacity only beginning to be realized.
- Energy efficiency programs can help residents, businesses and municipal government save money and energy, lower carbon emissions and reduce demand on the grid during severe weather events.

Changes in energy conservation and generation began decades ago in California, but transformation will involve a sustained effort with benefits for action realized now. For one, there are state and local funding vehicles to support investments in energy efficiency and renewable energy projects such as rooftop solar installations.

The proceeding profiles contain details about these needs and opportunities for clean energy investments at the local level throughout Los Angeles County. Each profile illustrates the geographic distribution of:

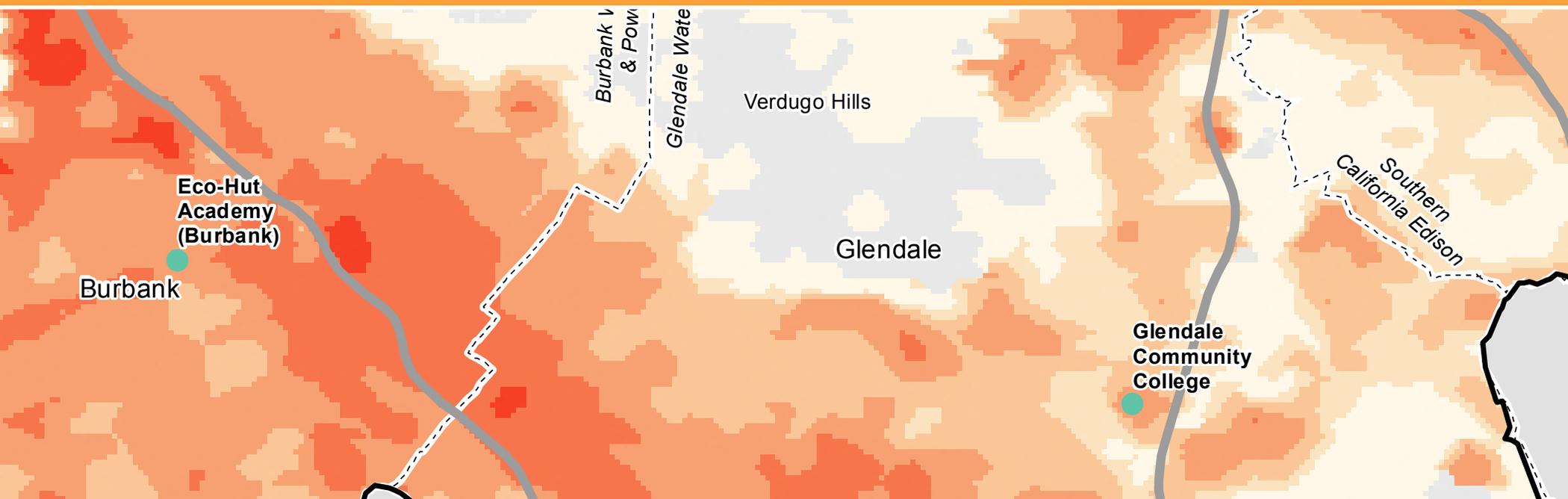
- 1) Vulnerability to climate change;
- 2) Existing environmental health vulnerabilities that will be exacerbated under climate change;
- 3) Rooftop solar capacity; and
- 4) Energy efficiency potential at the parcel level by sector.

The maps in each profile also highlight likely local recipients of two new and large sources of state revenue for energy efficiency and local renewable energy projects. The profiles are organized by the nine sub-regions in the Los Angeles County, using the boundaries defined by the Southern California Association of Governments.

Together, the maps tell a compelling, albeit short, story about the needs and opportunities for clean energy investments in and across each sub-region. Additional information on sustainable energy can be found at www.innovation.luskin.ucla.edu.

¹² Resilient Communities for America (2013). Paths to Building Resilient Cities and Counties. www.resilientamerica.org.

PROFILE OF CLEAN ENERGY INVESTMENT POTENTIAL ARROYO VERDUGO SUBREGION



ARROYO VERDUGO SUBREGION: VULNERABILITY TO CLIMATE CHANGE



The map can inform spatially-targeted strategies to reduce health risks from climate change.

Knowing what communities are vulnerable to climate change, as identified in the map and table below, enables policymakers to identify strategies to reduce risk and improve community resiliency. Climate change will increase health issues in many communities.

This map illustrates the extent of vulnerability to climate change in the communities (at the census tract level) of the Arroyo Verdugo Subregion. The data comes from the California Environmental Health Tracking Program (CEHTP) of the California Department of Public Health, which created an index of 7 indicators.¹³ These indicators, of climate change impacts and a community's adaptive capacity, included:

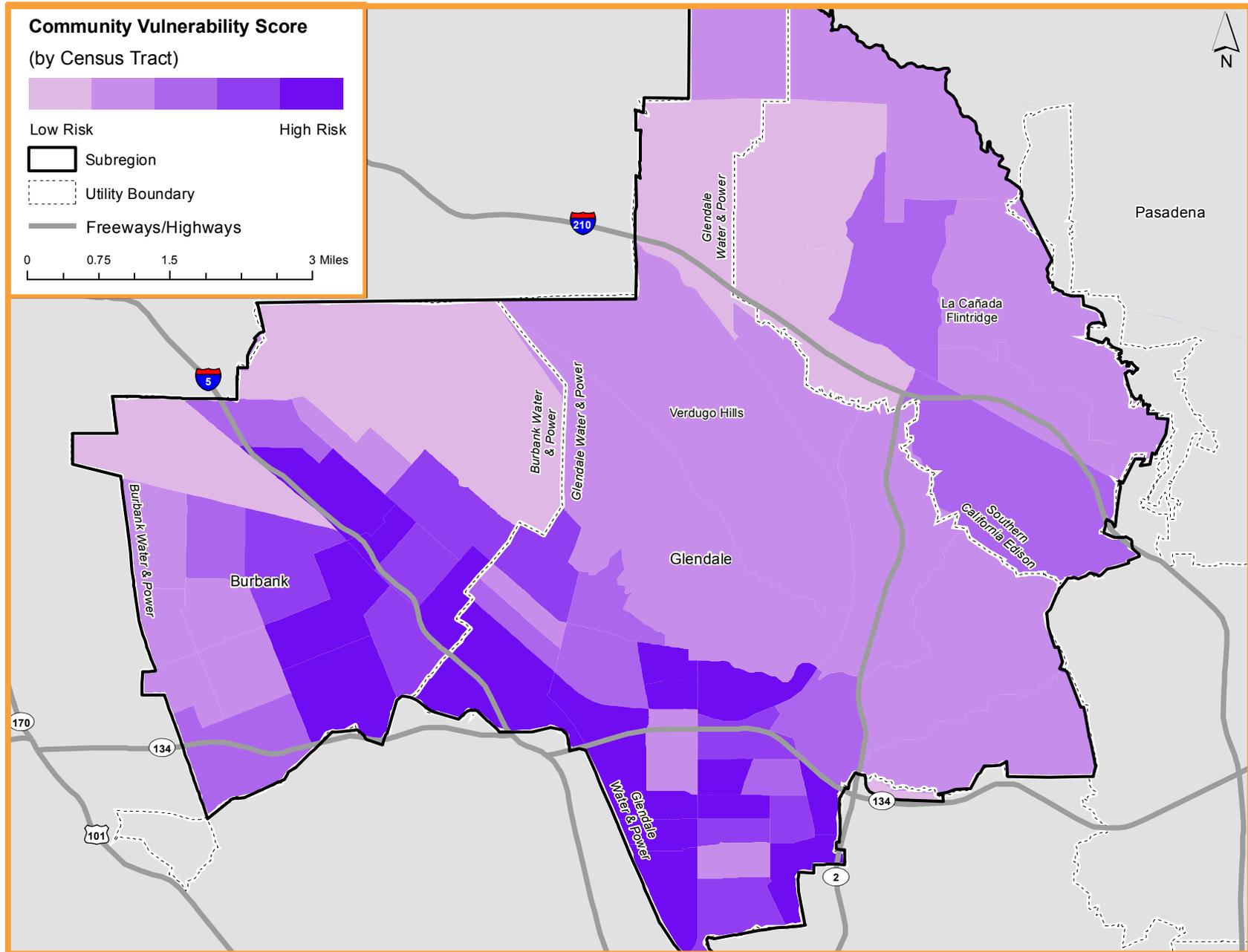
- Air conditioning (AC) ownership;
- Land cover characteristics (tree canopy and impervious surfaces);
- Access to transportation (transit and household car access);
- Social vulnerabilities (elderly living alone);
- Flood risk;
- Wildfire risk; and
- Sea level rise.

Note that the index does not include temperature predication data under climate change. Temperature predictions under climate change are shown in the Mid-Mentury Warming in the LA Region map.

Community Vulnerability to Climate Change in the Arroyo Verdugo Subregion			
Zip code(s) for which the census tract (in parentheses) falls within		Level*	Scores (on a scale of 1-3.778 with 3.778 being the most vulnerable)
91203 and 91202	(06037301701)	Top tier	3.222
91203 and 91202	(06037301701)	Top tier	3.222
90068, 91505, and 91506	(06037311700)	Top tier	3.222
90068, 91505, and 91506	(06037311700)	Top tier	3.222
90068, 91505, and 91506	(06037311700)	Top tier	3.222
90039	(06037188300)	Top tier	3.222
91501 and 91502	(06037310701)	Top tier	3.111
91501 and 91502	(06037310701)	Top tier	3.111
91203 and 91204	(06037301702)	Top tier	3.111
91203 and 91204	(06037301702)	Top tier	3.111

*Relative to other census tracts in California

VULNERABILITY TO CLIMATE CHANGE



Source: California Environmental Health Tracking Program, August 2011. "Community Vulnerabilities to Climate Change." Environmental Health Investigations Branch, California Department of Public Health. Final report available at www.cehtp.org/p/climate_population_vulnerabilities.

ARROYO VERDUGO SUBREGION: ENVIRONMENTAL HEALTH RISK



The map will inform the investment plan for the Greenhouse Gas Reduction Fund.

This map illustrates the screening tool that the State of California developed to identify communities disproportionately burdened by and vulnerable to multiple sources of pollution. Called the California Communities Environmental Health Screening Tool 2.0 (CalEnviroTool 2.0), it generates environmental health risk scores and rankings for every census tract in the state, incorporating data from 19 indicators within two categories: 1) pollution burden, exposure and environmental effect indicators; and 2) population characteristics, sensitive populations and socioeconomic factor indicators.¹⁴ High rankings indicate relatively high vulnerability.

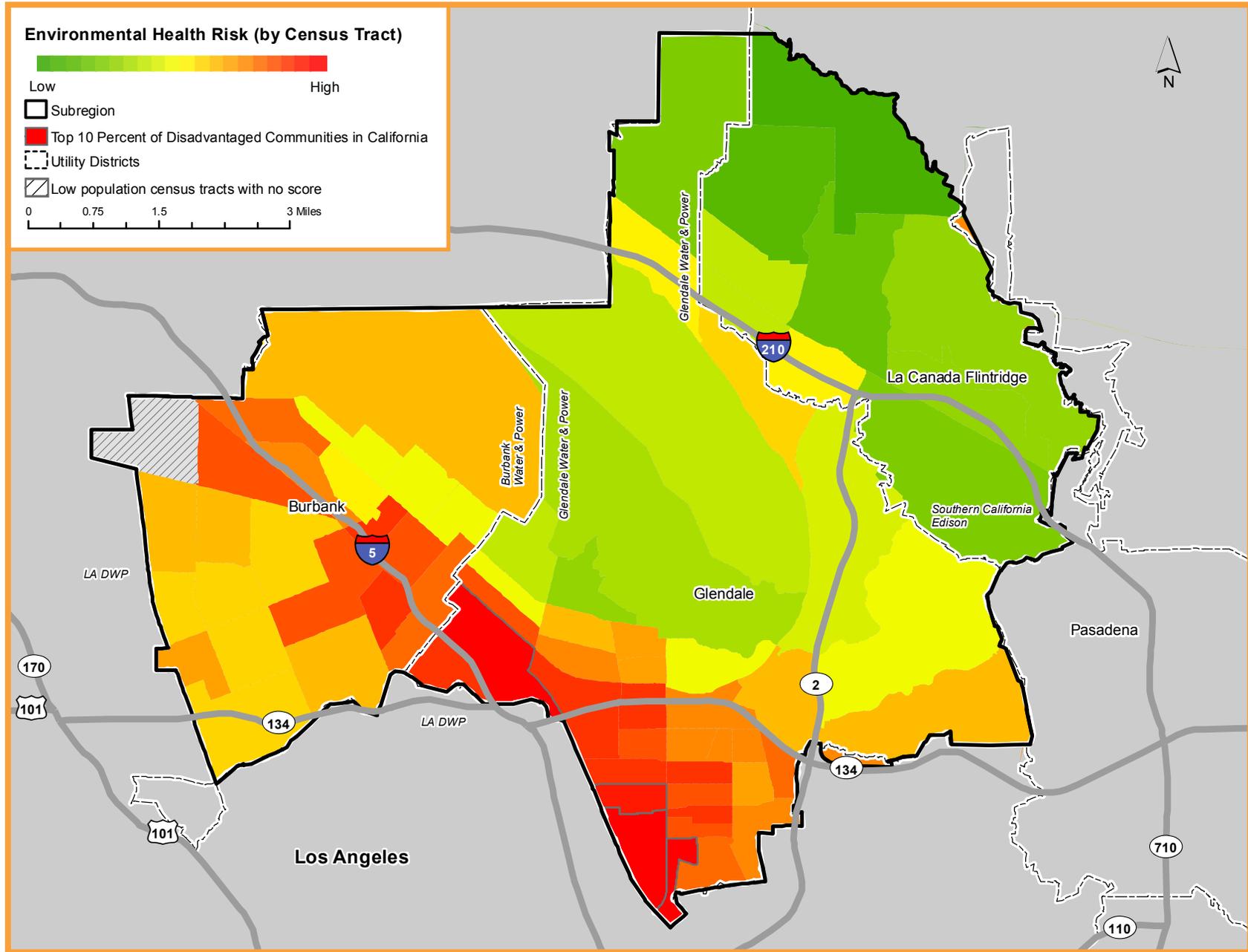
CalEnviroScreen will inform the State's identification of disadvantaged communities pursuant to **Senate Bill 535** (SB 535). SB 535 requires that at least 25 percent of monies from the **Greenhouse Gas Reduction Fund** be directed to projects that benefit disadvantaged communities and at least 10 percent of program funding expended will be directed to projects located in disadvantaged communities. With revenue from the State's cap-and-trade program, the Greenhouse Gas Reduction Fund is expected to soon generate billions of dollars every year for projects that reduce greenhouse gas emissions, create jobs and other co-benefits.

It is expected that communities with environmental risk scores in the top 20 percent will be prioritized for funding under the Greenhouse Gas Reduction Fund. To be conservative, however, the following map outlines with light grey lines communities with environmental risks scores in the top 10 percent. This map and others in the series, can help decision-makers and community members think strategically about where and what to invest in, to reduce pollution, expand clean energy generation, and create jobs.

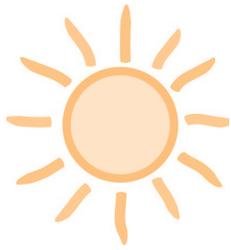
Results from the California Communities Environmental Health Screening Tool: Highest Scores for Arroyo Verdugo				
Zip code(s) for which the census tract (in parentheses) falls within		Tier*	Percentile rank*	Score
91204	(6037302401)	Top Tier	96-100%	46.35
91201	(6037301601)	Top Tier	96-100%	44.98
91204 and 91205	(6037302505)	Top Tier	96-100%	43.74
91204	(6037302302)	2nd Tier	91-95%	39.51
91205	(6037302503)	3rd Tier	86-90%	37.18
91201	(6037301602)	3rd Tier	86-90%	36.91
91202 and 91203	(6037301801)	3rd Tier	86-90%	36.90
91501 and 91502	(6037310701)	3rd Tier	86-90%	36.83
91202 and 91203	(6037301701)	3rd Tier	86-90%	36.80
91204 and 91210	(6037302301)	3rd Tier	86-90%	36.55

*Compared to other census tracts in California

ENVIRONMENTAL HEALTH RISK



Source: California Environmental Protection Agency and the Office of Environmental Health Hazard Assessment, "California Communities Environmental Health Screening Tool Version 2.0" (2014). <http://oehha.ca.gov/ej/ces2.html>. For the purpose of this report, the highest scoring census tracts are identified as disadvantaged communities and are delineated with a grey border and red color.



ARROYO VERDUGO SUBREGION: SOLAR CAPACITY

The Arroyo Verdugo Subregion is endowed with both bountiful sunshine and numerous buildings that offer valuable siting opportunities for solar energy generation. This map identifies the rooftop solar opportunities across neighborhoods in the Arroyo Verdugo Subregion.¹⁶ Economic development planners, building owners and anyone interested in expanding solar power can use this map, along other parcel level analyses,¹⁷ to identify potential investment opportunities.¹⁸ Because cost-effectiveness increases with the size of a solar installation, the map statistics table presents the number of potential solar projects by size and the total rooftop potential.

740

job years could be created if 5% of rooftop solar potential in Arroyo Verdugo Subregion was realized.¹⁹

MAP STATISTICS	Single Family	74%	Total Rooftop Solar Potential	592 megawatts
	Multi-unit Residential	16%	Total Potential Sites	51,129 rooftops
	Commercial & Industrial	9%	Median Rooftop Availability	550 sq. ft.
	Government & Non-profit	<1%	Median Potential of Available Parcels	5.28 kilowatts

Jobs: If just 5% of total rooftop solar potential in the Arroyo Verdugo Subregion was realized, approximately 740 job years would be created.¹⁹

Pollution Reduction: This would also eliminate 31,577 metric tons of carbon dioxide pollution each year.²⁰

FUNDING OPPORTUNITIES

State policies that expand opportunities for solar include the potentially billions of dollars from Proposition 39's Clean Energy Job Creation Fund as well as the AB 32 Greenhouse Gas Reduction Fund (cap-and-trade auction proceeds). In order for the Arroyo Verdugo Subregion to benefit, policymakers will have to be vigilant to ensure that residents, businesses and schools have access to these opportunities.

Job training will also be supported by Proposition 39. The map identifies solar job training sites that could be eligible for these resources.

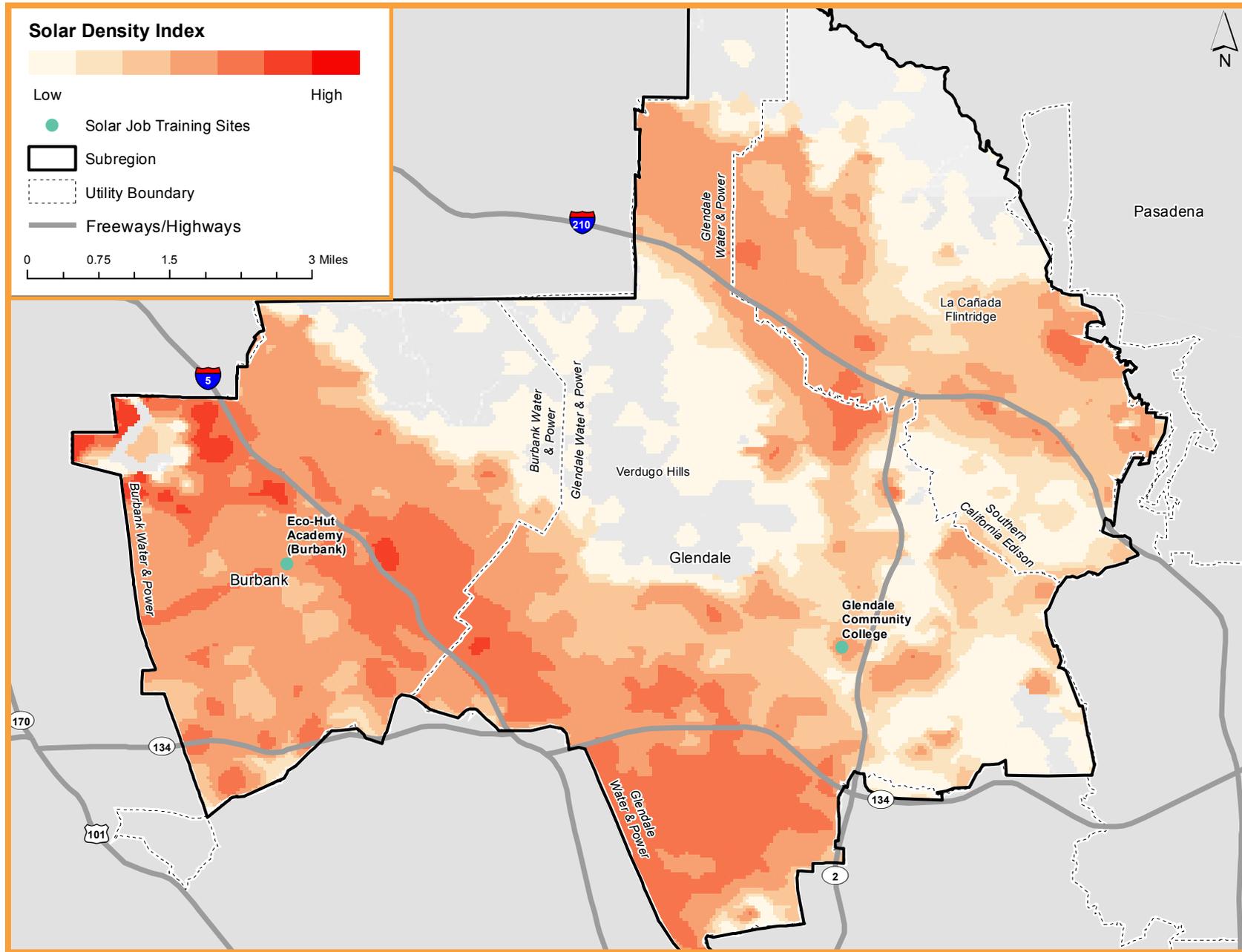
Local policies also provide financial incentives for solar investments. Southern California Edison offers incentives through the California Solar Initiative, including rebates on solar equipment and installation. Residential and commercial customers could also be eligible for Net Energy Metering, which gives you credit for the electricity generated by your solar system. Burbank Water and Power offers a Solar Support Rebate Program that provides rebates for commercial and residential solar systems. At the time this profile went to print, Glendale Water and Power's Residential Solar Solutions Program is oversubscribed but accepting applications for the wait list.



Parcels with the Largest Potential Solar Projects in the Arroyo Verdugo Subregion

Rank	Potential (kW)	Parcel Address	Zip Code	Parcel Use Description
1	3,652	1501 N Victory Pl; Burbank	91502	Shopping Centers (Regional)
2	3,316	500 S Buena Vista St; Burbank	91521	Athletic & Amusement Facilities
3	2,991	3000 W Alameda Ave; Burbank	91523	Motion Picture, Radio, & Television
4	2,102	805 S San Fernando Blvd; Burbank	91502	Heavy Manufacturing
5	1,429	111 S Central Ave; Glendale	91206	Shopping Centers (Regional)

SOLAR CAPACITY



Source: Original solar capacity data: Los Angeles County, "Los Angeles County Solar Map." solarmap.lacounty.gov. Data modified by UCLA for the "Los Angeles County Solar Atlas," 2011, from which the above map was created. innovation.luskin.ucla.edu. Solar training sites data: USC Program for Environmental and Regional Equity, 2011. "Empowering LA's Solar Workforce." Sponsored by the Los Angeles Business Council. Original data from Environment California Research and Policy Center, 2011. "Building a Clean Energy Workforce: Preparing Californians for New Opportunities in the State's Green Economy."

ARROYO VERDUGO SUBREGION: ENERGY EFFICIENCY POTENTIAL: RESIDENTIAL BUILDINGS/HOMES



89% of homes in Arroyo Verdugo were built before the state's energy efficiency building codes.

Simple retrofits can save money and make your home more comfortable year round.

The map highlights neighborhoods where potential for energy efficiency investments might be greatest for residential homes.²¹ Buildings constructed before 1978 in general produce greater cost savings when retrofitted than buildings built after 1978.²² The potential for energy efficiency investments is summarized for the Arroyo Verdugo Subregion in the map statistics table.

		Residential Buildings in the Arroyo Verdugo Subregion		All Buildings in the Arroyo Verdugo Subregion	
MAP STATISTICS	# of single-family homes	37,789	# of total buildings	51,022	
	% built before 1978	89%	% built before 1978	87%	
	Average square footage of pre-1978 buildings	2,911	Average square footage of pre-1978 buildings	3,754	
	% built in or after 1978	11%	% built in or after 1978	13%	
	Average square footage of post-1978 buildings	4,835	Average square footage post-1978 buildings	7,235	

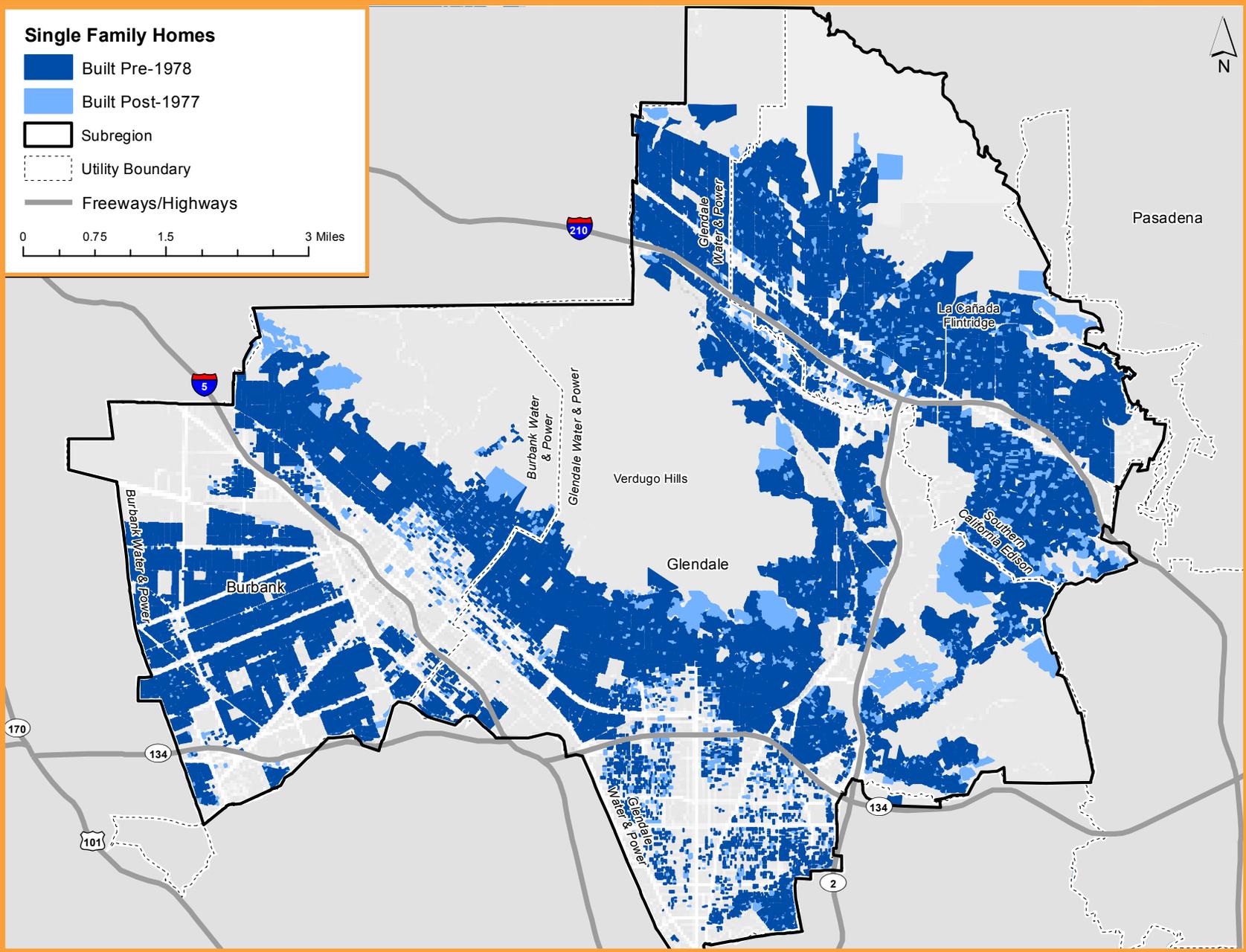
FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The Arroyo Verdugo Subregion could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would help consumers save money on their electricity bills, support local green jobs and reduce pollution.

Local policies provide financial incentives to homeowners for energy efficiency investments. This includes:

- Burbank Water and Power—
Offers rebates for energy efficiency upgrades through the Home Rewards Rebate Program as well as a Green Home House Call program that provides free expert evaluation and installation of energy efficiency products, among other residential programs.
- Glendale Water and Power—
Offers a Smart Home Energy and Water Savings Rebate Program, which provides rebates for various energy efficiency upgrades, and a Tree Power Program that provides up to three shade trees per residential customer.
- Southern California Edison—
Offers a Residential Energy Efficiency Rebate Program that provides rebates for a wide range of energy efficiency upgrades including up to \$1,100 to help with A/C installation, maintenance and repair.
- Southern California Gas Company—
Also provides rebates for a wide range of energy efficiency upgrades.

ENERGY EFFICIENCY POTENTIAL: RESIDENTIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

ARROYO VERDUGO SUBREGION: ENERGY EFFICIENCY POTENTIAL: MULTI-UNIT RESIDENTIAL BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for multi-unit residential buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for the Arroyo Verdugo Subregion in the map statistics table.

83% of apartments and other multi-unit residential buildings in Arroyo Verdugo Subregion were built before the state's energy efficiency building codes.

The cheapest energy is the energy not used in the first place.

		Multi-unit Residential Buildings in the Arroyo Verdugo Subregion		All Buildings in the Arroyo Verdugo Subregion	
MAP STATISTICS	# of multi-unit residential buildings	8,281	# of total buildings	51,022	
	% built before 1978	83%	% built before 1978	87%	
	Average square footage of pre-1978 buildings	4,596	Average square footage of pre-1978 buildings	3,754	
	% built in or after 1978	17%	% built in or after 1978	13%	
	Average square footage of post-1978 buildings	8,134	Average square footage post-1978 buildings	7,235	

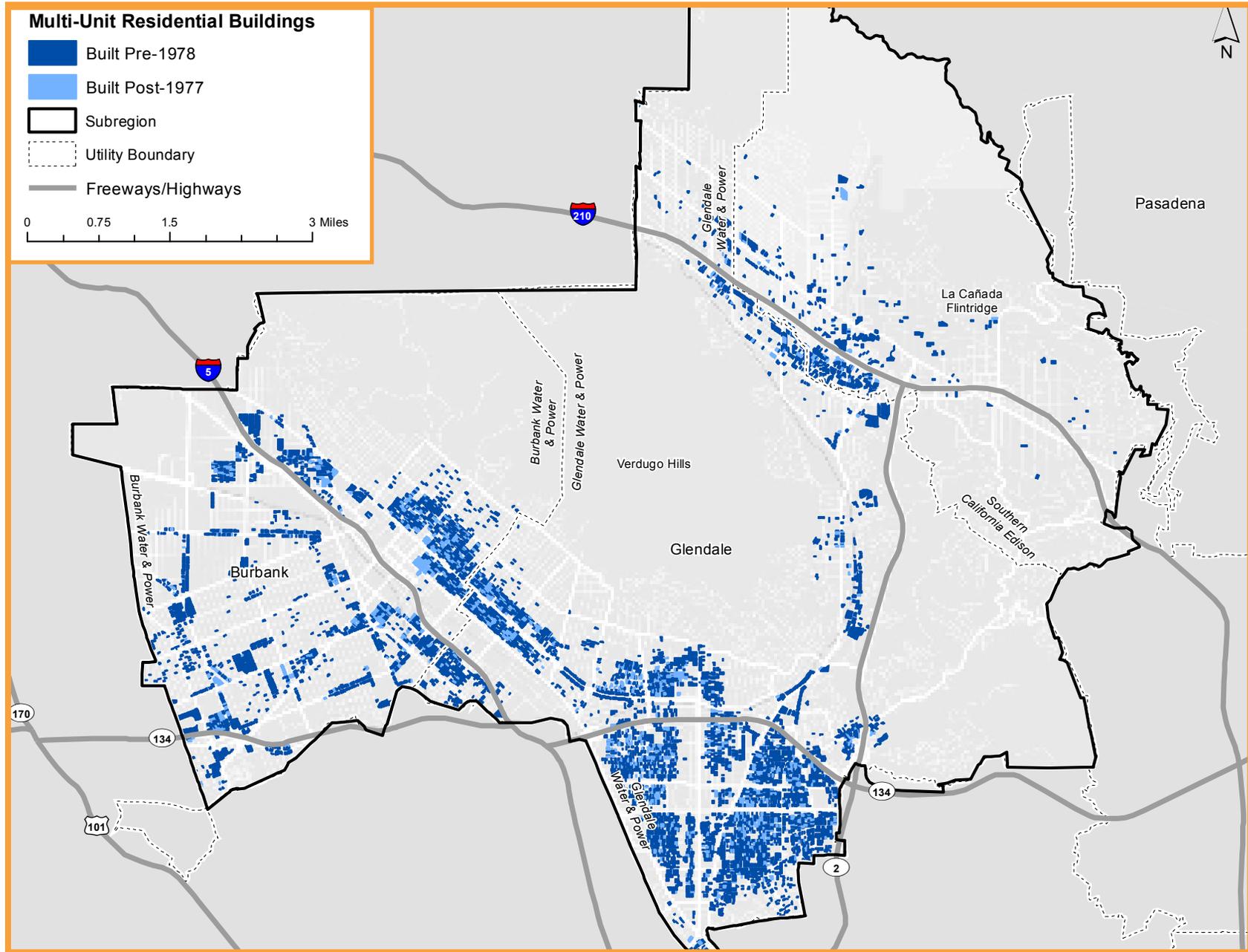
FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The Arroyo Verdugo Subregion could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would help consumers and property owners save money on their electricity bills, support local green jobs and reduce pollution.

Local policies also provide financial incentives for energy efficiency investments in multi-unit residential buildings. Examples of incentives provided by local utilities include:

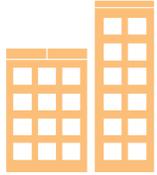
- Burbank Water and Power— Offers rebates to property owners and low-income residential customers for energy efficiency upgrades through the Home Rewards Rebate Program.
- Glendale Water and Power— Offers technical assistance for installing water saving equipment in multi-unit housing.
- Southern California Edison— Offers a multi-family residential energy efficiency rebate program that provides rebates for lighting, HVAC, window insulation and more.
- Southern California Gas Company— Offers a multi-family residential energy program that provides rebates for energy efficiency upgrades to property managers and owners of multi-unit residences.

ENERGY EFFICIENCY POTENTIAL: MULTI-UNIT RESIDENTIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

ARROYO VERDUGO SUBREGION: ENERGY EFFICIENCY POTENTIAL: COMMERCIAL AND INDUSTRIAL BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for commercial and industrial buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for the Arroyo Verdugo Subregion in the statistics table, below.

30%
on average of
the energy used
in commercial
buildings is wasted,
according to the
U.S. Environmental
Protection Agency.

Energy efficiency
upgrades save
money and create
jobs.

		Commercial and Industrial Buildings in the Arroyo Verdugo Subregion		All Buildings in the Arroyo Verdugo Subregion	
MAP STATISTICS	# of commercial and industrial buildings	4,683	# of total buildings	51,022	
	% built before 1978	77%	% built before 1978	87%	
	Average square footage of pre-1978 buildings	8,864	Average square footage of pre-1978 buildings	3,754	
	% built in or after 1978	23%	% built in or after 1978	13%	
	Average square footage of post-1978 buildings	14,897	Average square footage post-1978 buildings	7,235	

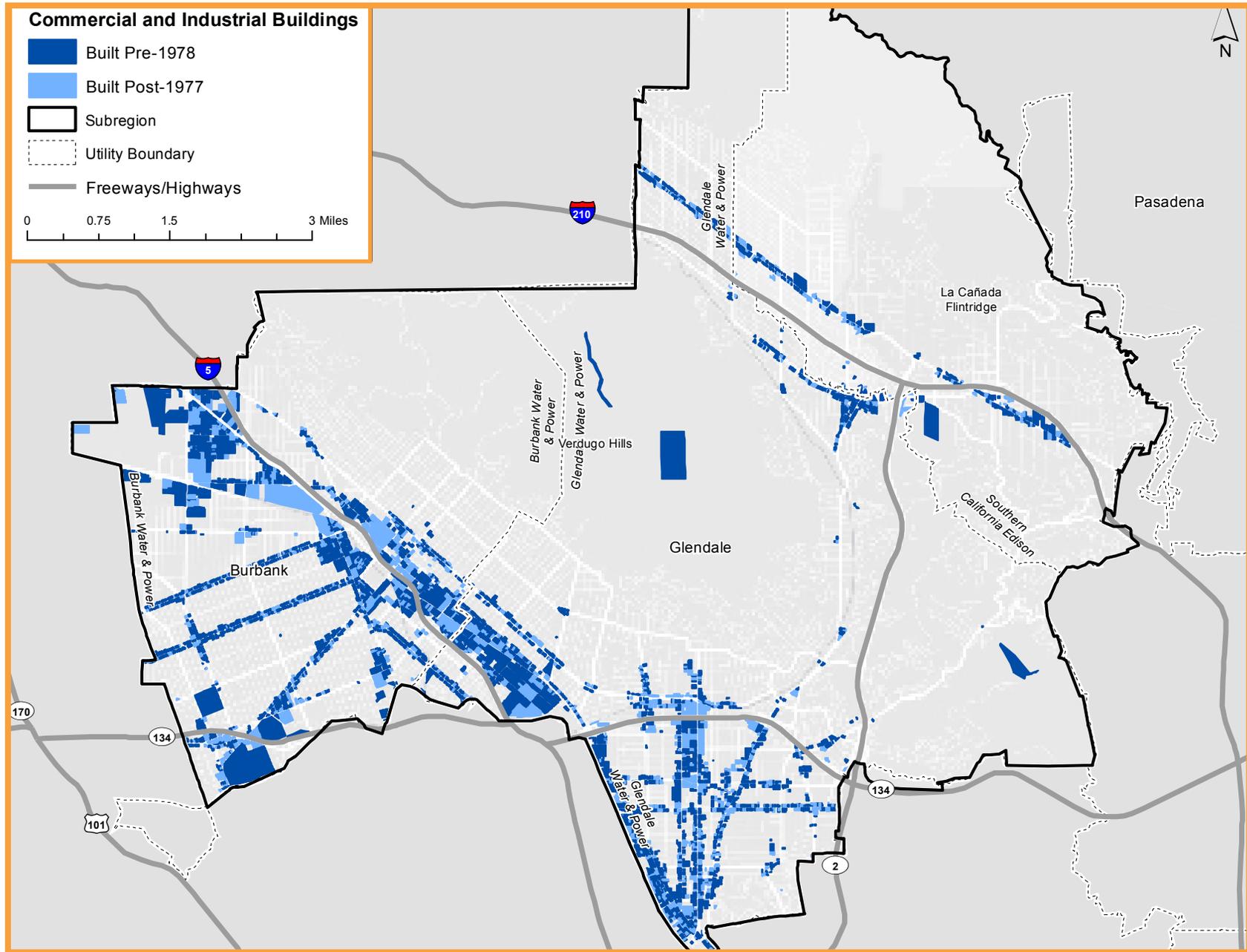
FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The Arroyo Verdugo Subregion could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would help businesses save money on their electricity bills, support local green jobs and reduce pollution.

Local policies also provide financial incentives for energy efficiency investments.

- Burbank Water and Power—
Provides rebates to business customers to install energy efficiency upgrades such as to lighting, HVAC and heat pumps.
- Glendale Water and Power—
Offers incentives for energy efficiency improvements tailored to small and mid-sized businesses as well as large businesses.
- Southern California Edison—
Programs offered include: Demand Response, Energy Efficiency Customized Solutions, and Energy Efficiency Express Solutions.
- Southern California Gas Company—
Offers a range of services including: Energy Efficiency Calculated Incentive Program, Energy Efficiency Rebates for Business Program, and Non-residential On-bill Financing.

ENERGY EFFICIENCY POTENTIAL: COMMERCIAL AND INDUSTRIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

ARROYO VERDUGO SUBREGION: ENERGY EFFICIENCY POTENTIAL: GOVERNMENT AND NON-PROFIT BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for government and non-profit owned buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for the Arroyo Verdugo Subregion in the statistics table, below.

Billions

of \$
are on the table
for energy
efficiency and
clean energy
investments in
California.

MAP
STATISTICS

	Government and Non-profit Buildings in the Arroyo Verdugo Subregion		All Buildings in the Arroyo Verdugo Subregion	
# of government and non-profit buildings	269	# of total buildings in the Arroyo Verdugo Subregion	51,022	
% built before 1978	91%	% built before 1978	87%	
Average square footage of pre-1978 buildings	21,343	Average square footage of pre-1978 buildings	3,754	
% built in or after 1978	9%	% built in or after 1978	13%	
Average square footage of post-1978 buildings	12,582	Average square footage post-1978 buildings	7,235	

FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The Arroyo Verdugo Subregion could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would save taxpayers' money while supporting local green jobs and reducing pollution.

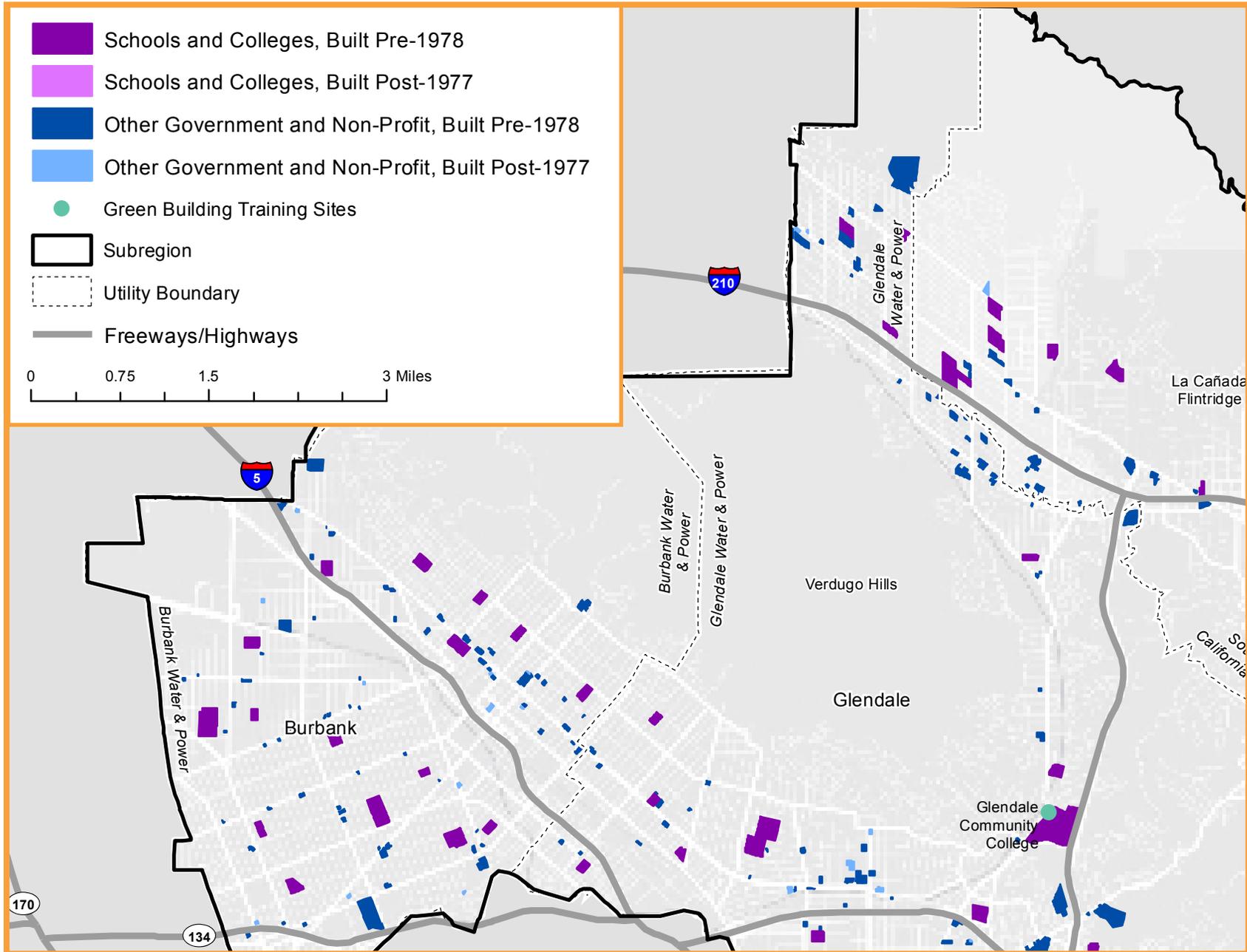
Municipal buildings will be eligible recipients for Proposition 39 funds. The map identifies the municipal buildings constructed before 1978, an indication of likely cost effectiveness for a retrofit.

Schools are pulled out because schools will be prime recipients of Proposition 39 funds. As the map indicates, numerous schools were constructed pre-1978, before energy efficiency building codes were in effect.

Green job training sites will also be supported by Proposition 39 funds. The map identifies green buildings training sites that could be eligible for these funds.



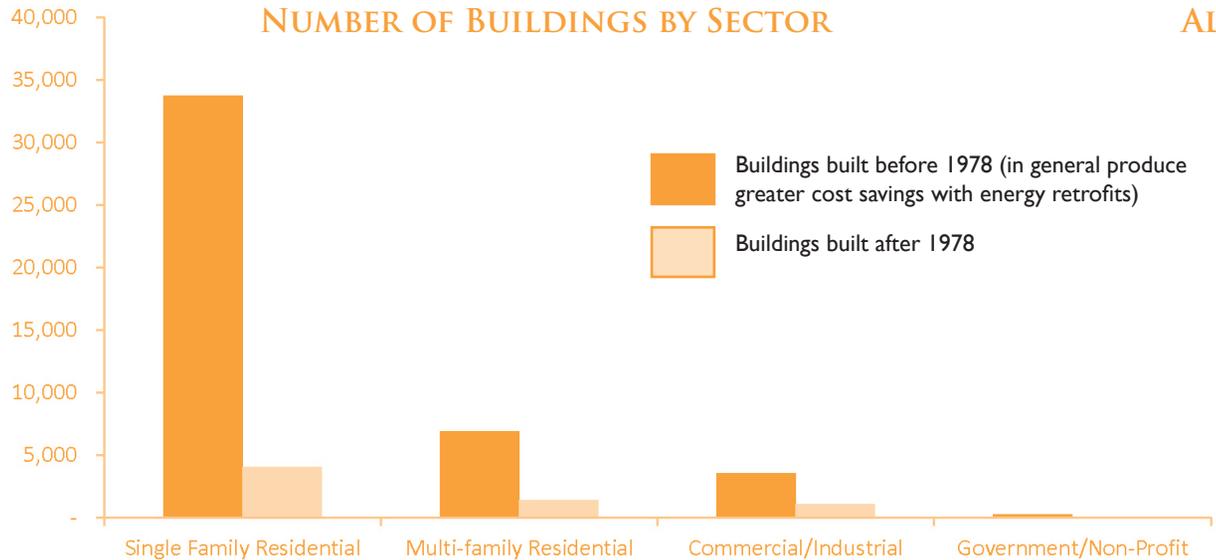
ENERGY EFFICIENCY POTENTIAL: GOVERNMENT AND NON-PROFIT



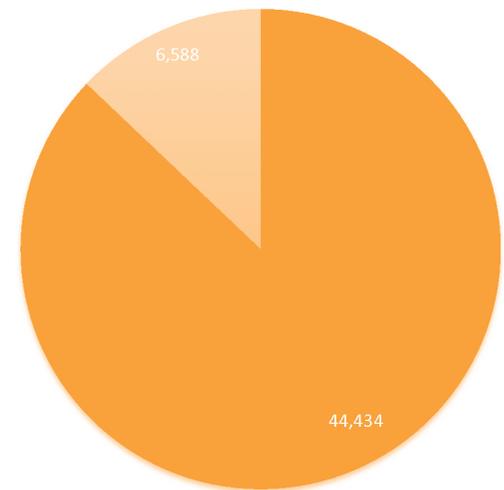
Source: Building age data: Los Angeles County Assessor; Schools: Extracted from Points of Interest (LMS Data) from LA County GIS Portal; Green building training site data: USC Program for Environmental and Regional Equity. Original data from Environment California Research and Policy Center, 2011. "Building a Clean Energy Workforce: Preparing Californians for New Opportunities in the State's Green Economy."

ARROYO VERDUGO: ENERGY EFFICIENCY POTENTIAL SUMMARY

NUMBER OF BUILDINGS BY SECTOR



ALL BUILDINGS IN ARROYO VERDUGO

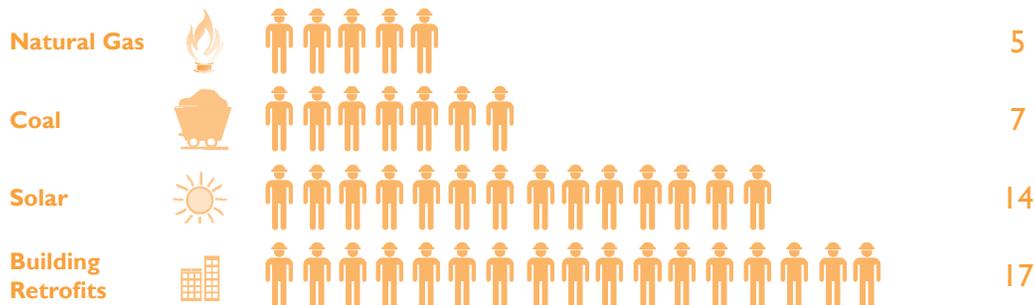


LINKING INVESTMENTS IN WORKFORCE TRAINING TO SUSTAINABLE JOBS

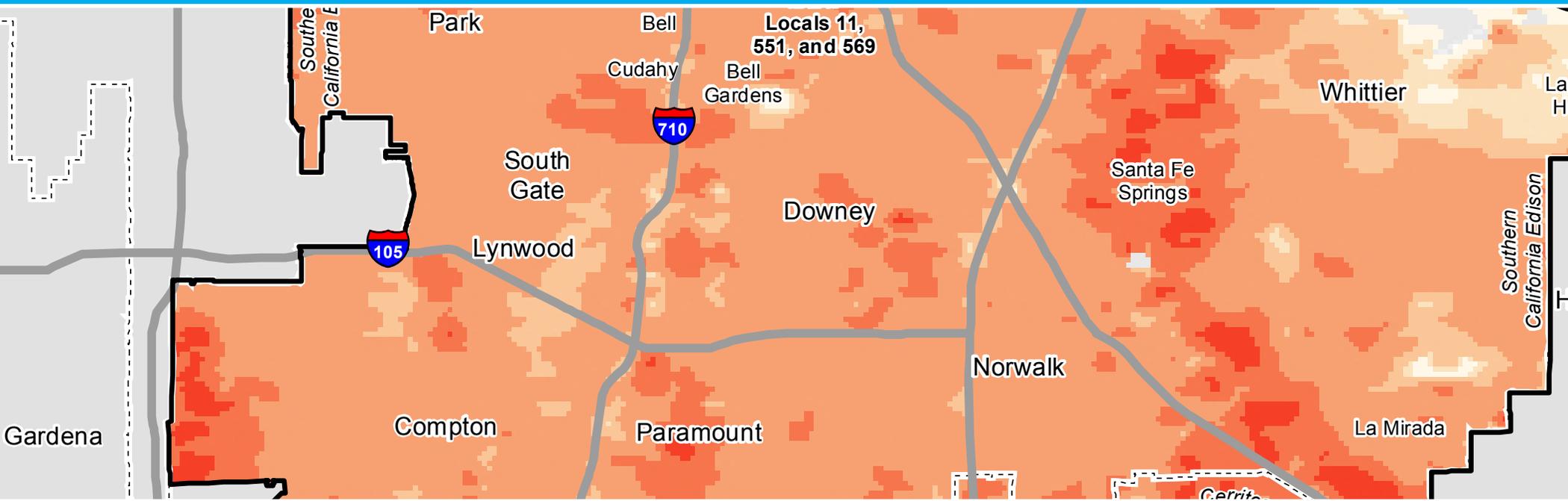
“Sustainable jobs” pay prevailing wages and provide healthcare and access to opportunities for wage growth.²³ To effectively link Proposition 39’s funding for worker training with sustainable jobs, policymakers should consider best practices for a strong pipeline between training programs and careers. For example, the Los Angeles Community College District and the City of Los Angeles have approved project labor/stabilization agreements, or contracts with labor unions, that include goals for local hires and apprentices workers. Apprenticeship programs can create a strong pipeline between education and sustainable jobs and careers.

THE TRUTH ABOUT JOB CREATION

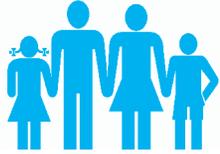
Energy efficiency investments create costs savings for the customer and jobs for the region. Invest \$1 million in the following industries, you get this many jobs.²⁴



PROFILE OF CLEAN ENERGY INVESTMENT POTENTIAL GATEWAY CITIES



GATEWAY CITIES: VULNERABILITY TO CLIMATE CHANGE



The map can inform spatially-targeted strategies to reduce health risks from climate change.

Knowing what communities are vulnerable to climate change, as identified in the map and table below, enables policymakers to identify strategies to reduce risk and improve community resiliency. Climate change will increase health issues in many communities.

This map illustrates the extent of vulnerability to climate change in the communities (at the census tract level) of the Gateway Cities. The data comes from the California Environmental Health Tracking Program (CEHTP) of the California Department of Public Health, which created an index of 7 indicators.¹³ These indicators, of climate change impacts and a community’s adaptive capacity, included:

- Air conditioning (AC) ownership;
- Land cover characteristics (tree canopy and impervious surfaces);
- Access to transportation (transit and household car access);
- Social vulnerabilities (elderly living alone);
- Flood risk;
- Wildfire risk; and
- Sea level rise.

Note that the index does not include temperature predication data under climate change. Temperature predictions under climate change are shown in the Mid-Mentury Warming in the LA Region map.

Community Vulnerability to Climate Change in the Gateway Cities			
Zip code(s) for which the census tract (in parentheses) falls within		Level*	Scores (on a scale of 1-3.778 with 3.778 being the most vulnerable)
90802	(06037576100)	Top tier	3.750
90802	(06037576601)	Top tier	3.667
90703, 90670, and 90650	(06037504102)	Top tier	3.625
90703, 90670, and 90650	(06037504102)	Top tier	3.625
90703, 90670, and 90650	(06037504102)	Top tier	3.625
90802 and 90803	(06037576602)	Top tier	3.556
90802 and 90803	(06037576602)	Top tier	3.556
90803	(06037577501)	Top tier	3.556
90802, 90731, and 90813	(06037575600)	Top tier	3.500
90802, 90731, and 90813	(06037575600)	Top tier	3.500

*Relative to other census tracts in California

GATEWAY CITIES: ENVIRONMENTAL HEALTH RISK



The map will inform the investment plan for the Greenhouse Gas Reduction Fund.

This map illustrates the screening tool that the State of California developed to identify communities disproportionately burdened by and vulnerable to multiple sources of pollution. Called the California Communities Environmental Health Screening Tool 2.0 (CalEnviroTool 2.0), it generates environmental health risk scores and rankings for every census tract in the state, incorporating data from 19 indicators within two categories: 1) pollution burden, exposure and environmental effect indicators; and 2) population characteristics, sensitive populations and socioeconomic factor indicators.¹⁴ High rankings indicate relatively high vulnerability.

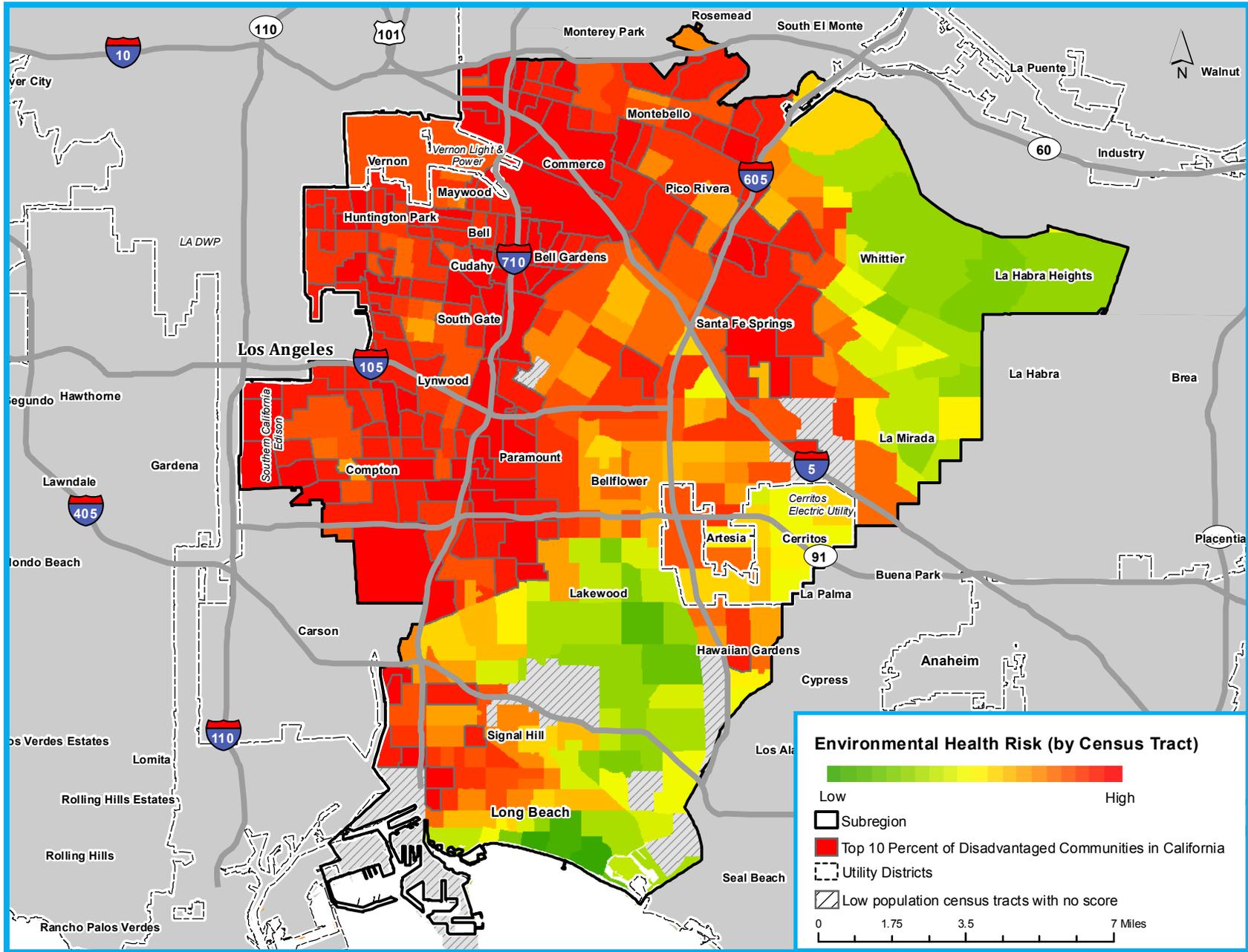
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It is expected that communities with environmental risk scores in the top 20 percent will be prioritized for funding under the Greenhouse Gas Reduction Fund. To be conservative, however, the following map outlines with light grey lines communities with environmental risks scores in the top 10 percent. This map and others in the series, can help decision-makers and community members think strategically about where and what to invest in, to reduce pollution, expand clean energy generation, and create jobs.

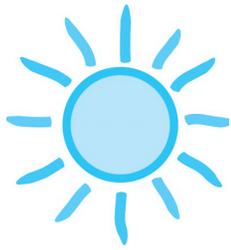
Results from the California Communities Environmental Health Screening Tool: Highest Scores for the Gateway Cities				
Zip code(s) for which the census tract (in parentheses) falls within		Tier*	Percentile rank*	Score
90023	(6037531301)	Top tier	96-100%	55.74
90023 and 90040	(6037531302)	Top tier	96-100%	54.46
90201	(6037534201)	Top tier	96-100%	54.43
90201	(6037534203)	Top tier	96-100%	53.96
90040, 90058, 90201 and 90640	(6037532304)	Top tier	96-100%	53.23
90022	(6037531602)	Top tier	96-100%	53.12
90262 and 90723	(6037553601)	Top tier	96-100%	51.66
90022 and 90040	(6037532303)	Top tier	96-100%	51.52
90022, 90023 and 90040	(6037532302)	Top tier	96-100%	51.09
90280	(6037536104)	Top tier	96-100%	50.98

*Compared to other census tracts in California

ENVIRONMENTAL HEALTH RISK



Source: California Environmental Protection Agency and the Office of Environmental Health Hazard Assessment, "California Communities Environmental Health Screening Tool Version 2.0" (2014). <http://oehha.ca.gov/ej/ces2.html>. For the purpose of this report, the highest scoring census tracts are identified as disadvantaged communities and are delineated with a grey border and red color.



GATEWAY CITIES: SOLAR CAPACITY

The Gateway Cities is endowed with both bountiful sunshine and numerous buildings that offer valuable siting opportunities for solar energy generation. This map identifies the rooftop solar opportunities across neighborhoods in the Gateway Cities.¹⁶ Economic development planners, building owners and anyone interested in expanding solar power can use this map, along other parcel level analyses,¹⁷ to identify potential investment opportunities.¹⁸ Because cost-effectiveness increases with the size of a solar installation, the map statistics table presents the number of potential solar projects by size and the total rooftop potential.

5,577
job years could be created if 5% of rooftop solar potential in Gateway Cities was realized.¹⁹

MAP STATISTICS	Single Family	76%	Total Rooftop Solar Potential	4,462 megawatts
	Multi-unit Residential	16%	Total Potential Sites	316,003 rooftops
	Commercial & Industrial	7%	Median Rooftop Availability	475 sq. ft.
	Government & Non-profit	1%	Median Potential of Available Parcels	4.56 kilowatts

Jobs: If just 5% of total rooftop solar potential in the Gateway Cities was realized, approximately 5,577 job years would be created.¹⁹

Pollution Reduction: This would also eliminate 237,922 metric tons of carbon dioxide pollution each year.²⁰

FUNDING OPPORTUNITIES

State policies that expand opportunities for solar include the potentially billions of dollars from Proposition 39's Clean Energy Job Creation Fund as well as the AB 32 Greenhouse Gas Reduction Fund (cap-and-trade auction proceeds). In order for the Gateway Cities to benefit, policymakers will have to be vigilant to ensure that residents, businesses and schools have access to these opportunities.

Job training will also be supported by Proposition 39. The map identifies solar job training sites that could be eligible for these resources.

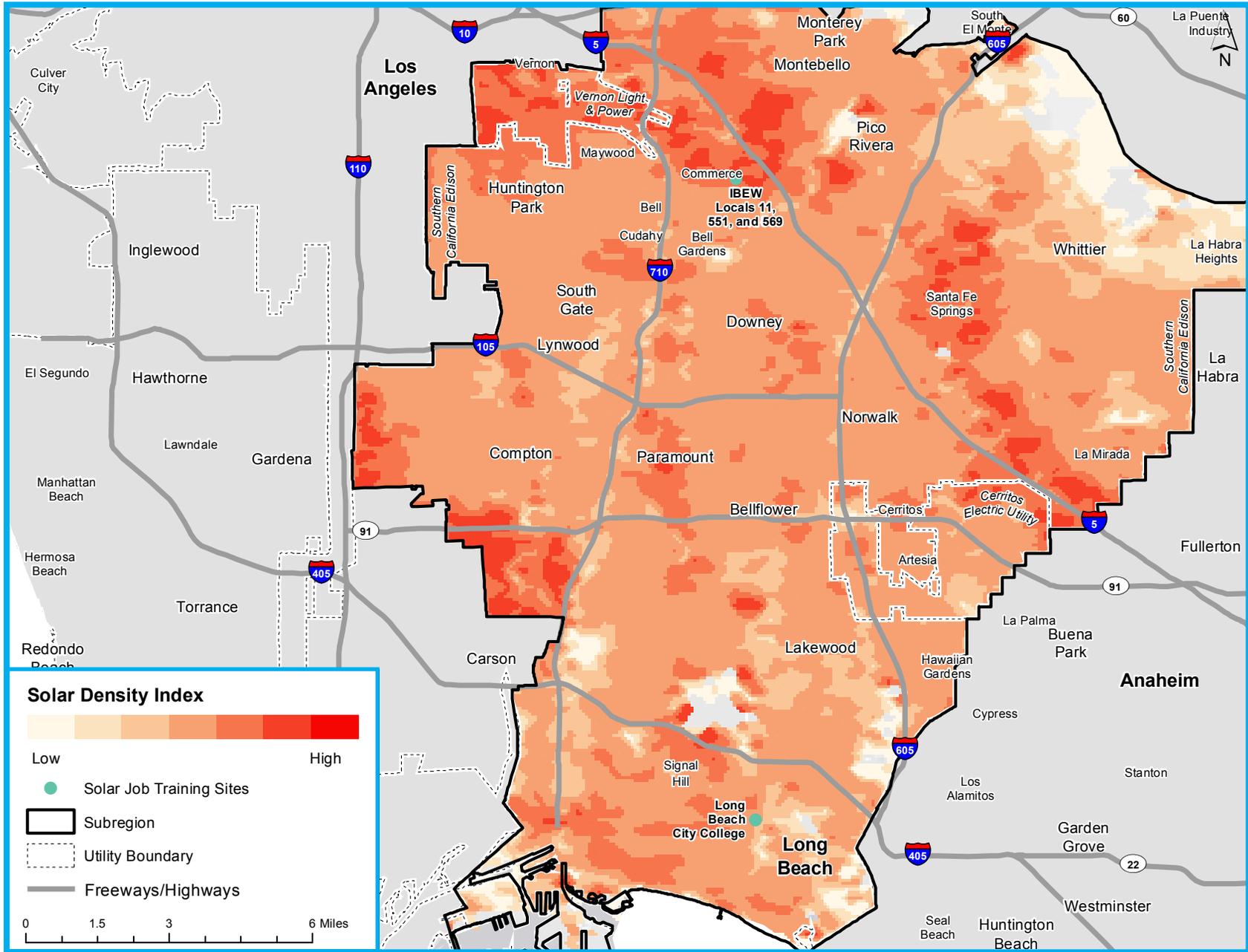
Local policies also provide financial incentives for solar investments. Through the California Solar Initiative, Southern California Edison offers incentives including rebates on solar equipment and installation of photovoltaics and solar heating systems. Residential and commercial customers could also be eligible for Net Energy Metering, which gives property owners credit for the electricity generated by the solar system on their rooftop.



Parcels with the Largest Potential Solar Projects in the Gateway Cities

Rank	Potential (kW)	Parcel Address	Zip Code	Parcel Use Description
1	6,706	5300 Sheila St; Commerce	90040	Food Processing Plants
2	5,979	12520 Slauson Ave; Santa Fe Springs	90670	Warehousing, Distribution, Storage
3	5,552	13500 Foster Rd; Santa Fe Springs	90670	Warehousing, Distribution, Storage
4	5,279	9630 Norwalk Blvd; Santa Fe Springs	90670	Warehousing, Distribution, Storage
5	5,170	2400 Yates Ave; Commerce	90040	Heavy Manufacturing

SOLAR CAPACITY



Source: Original solar capacity data: Los Angeles County, "Los Angeles County Solar Map." solarmap.lacounty.gov. Data modified by UCLA for the "Los Angeles County Solar Atlas," 2011, from which the above map was created. innovation.luskin.ucla.edu. Solar training sites data: USC Program for Environmental and Regional Equity, 2011. "Empowering LA's Solar Workforce." Sponsored by the Los Angeles Business Council. Original data from Environment California Research and Policy Center, 2011. "Building a Clean Energy Workforce: Preparing Californians for New Opportunities in the State's Green Economy."

GATEWAY CITIES: ENERGY EFFICIENCY POTENTIAL: RESIDENTIAL BUILDINGS/HOMES



93% of homes in Gateway Cities were built before the state's energy efficiency building codes.

Simple retrofits can save money and make the home more comfortable year round.

The map highlights neighborhoods where potential for energy efficiency investments might be greatest for residential homes.²¹ Buildings constructed before 1978 in general produce greater cost savings when retrofitted than buildings built after 1978.²² The potential for energy efficiency investments is summarized for the Gateway Cities in the map statistics table.

		Residential Buildings in the Gateway Cities	All Buildings in the Gateway Cities	
MAP STATISTICS	# of single-family homes	239,840	# of total buildings in the Gateway Cities	315,377
	% built before 1978	93%	% built before 1978	92%
	Average square footage of pre-1978 buildings	2,168	Average square footage of pre-1978 buildings	3,409
	% built in or after 1978	7%	% built in or after 1978	8%
	Average square footage of post-1978 buildings	3,198	Average square footage post-1978 buildings	9,762

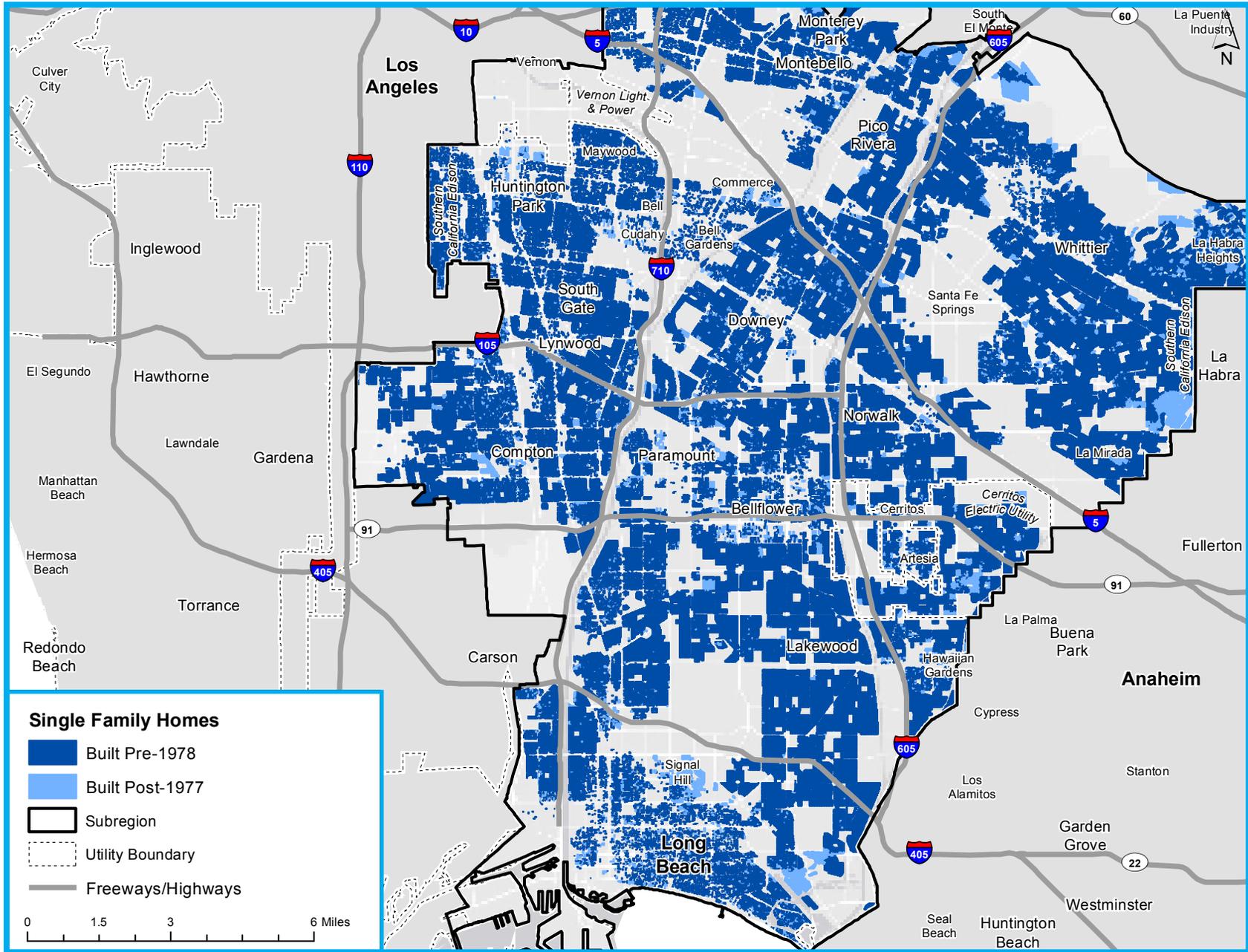
FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The Gateway Cities could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would help consumers save money on their electricity bills, support local green jobs and reduce pollution.

Local policies provide financial incentives to homeowners for energy efficiency investments. Through Energy Upgrade California™, incentives of up to \$4,500 are available to residential customers of Southern California Edison (SCE) and the Southern California Gas Company (SoCal Gas). Other programs include:

- Residential Energy Efficiency Rebate Program—
SCE provides residential incentives for a wide range of energy efficiency upgrades, including up to \$1,100 to help with A/C installation, maintenance and repair as well as refrigerator recycling, ENERGY STAR refrigerator rebates, pool pump and motor rebates, the More Light for Less program, whole house fan rebates, evaporative cooler rebates, water heater rebates and clothes washer rebates.
- Home Energy Efficiency Rebate Program—
SoCal Gas provides rebates to residential customers for energy efficiency upgrades, ENERGY STAR equipment.
- California Advanced Homes Incentives—
Incentive for home construction that performs at least 15% better than Title 24 Standards.

ENERGY EFFICIENCY POTENTIAL: RESIDENTIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

GATEWAY CITIES: ENERGY EFFICIENCY POTENTIAL: MULTI-UNIT RESIDENTIAL BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for multi-unit residential buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for the Gateway Cities in the map statistics table.

94% of apartments and other multi-unit residential buildings in Gateway Cities were built before the state's energy efficiency building codes.

The cheapest energy is the energy not used in the first place.

		Multi-unit Residential Buildings in the Gateway Cities		All Buildings in the Gateway Cities	
MAP STATISTICS	# of multi-unit residential buildings	50,287	# of total buildings in the Gateway Cities	315,377	
	% built before 1978	94%	% built before 1978	92%	
	Average square footage of pre-1978 buildings	3,827	Average square footage of pre-1978 buildings	3,409	
	% built in or after 1978	6%	% built in or after 1978	8%	
	Average square footage of post-1978 buildings	6,238	Average square footage post-1978 buildings	9,762	

FUNDING OPPORTUNITIES

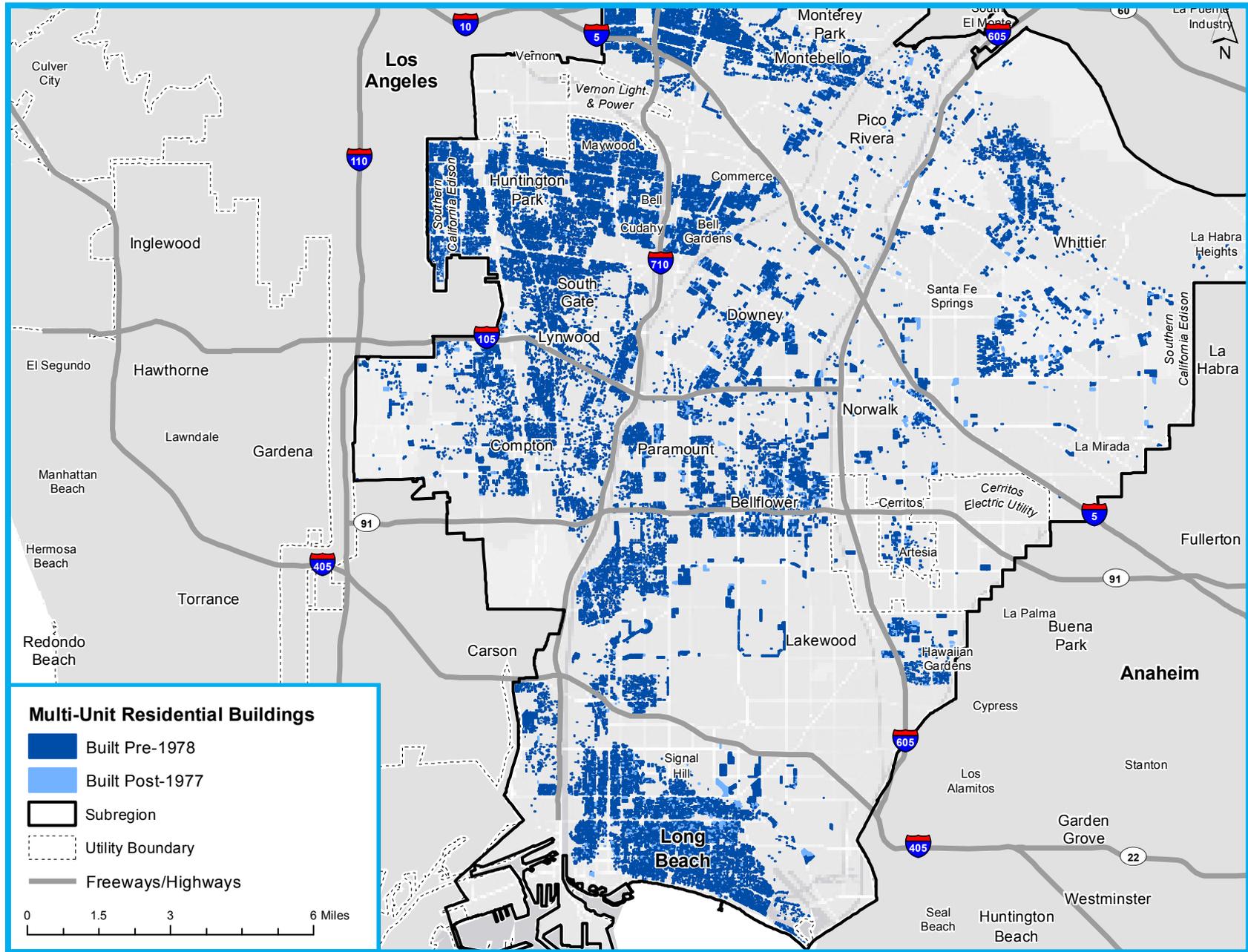
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Local policies also provide financial incentives for energy efficiency investments in multi-unit residential buildings. The previous narrative page describes residential incentive programs offered by Southern California Edison (SCE) and the Southern California Gas Company (SoCal Gas).

In addition, SCE offers a multi-family residential energy program that provides rebates to property managers and owners of multi-unit residences for energy efficiency upgrades.

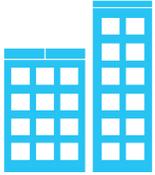
SoCal Gas also offers a multi-family residential energy program that provides rebates for energy efficiency investments made by property managers and owners of multi-unit residences.

ENERGY EFFICIENCY POTENTIAL: MULTI-UNIT RESIDENTIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

GATEWAY CITIES: ENERGY EFFICIENCY POTENTIAL: COMMERCIAL AND INDUSTRIAL BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for commercial and industrial buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for the Gateway Cities in the statistics table, below.

30%
on average of
the energy used
in commercial
buildings is wasted,
according to the
U.S. Environmental
Protection Agency.

Retrofitting
buildings to be
energy efficient
saves money and
creates jobs.

MAP
STATISTICS

	Commercial and Industrial Buildings in the Gateway Cities		All Buildings in the Gateway Cities	
# of commercial and industrial buildings	23,590	# of total buildings in the Gateway Cities	315,377	
% built before 1978	77%	% built before 1978	92%	
Average square footage of pre-1978 buildings	16,639	Average square footage of pre-1978 buildings	3,409	
% built in or after 1978	23%	% built in or after 1978	8%	
Average square footage of post-1978 buildings	30,513	Average square footage post-1978 buildings	9,762	

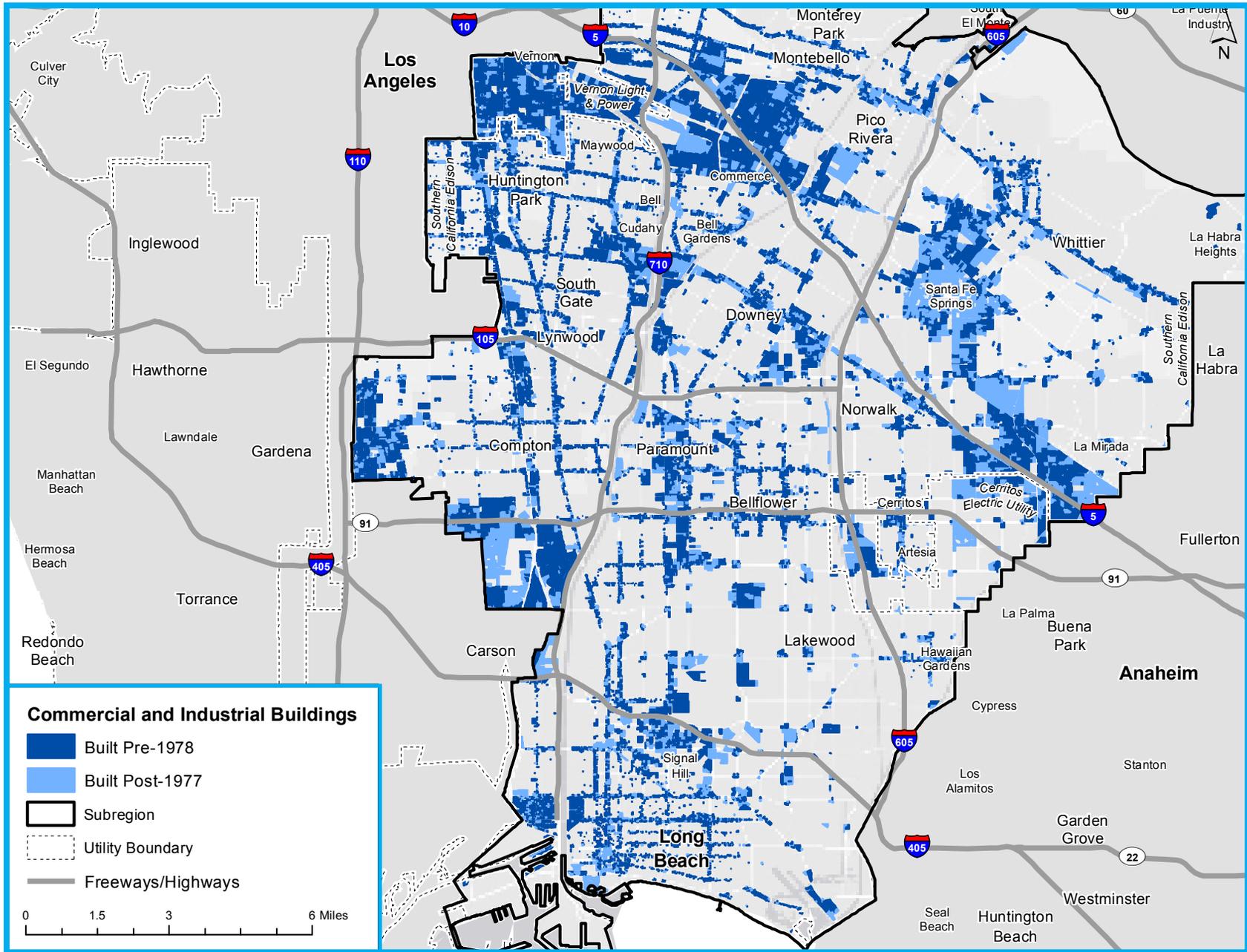
FUNDING OPPORTUNITIES

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- Other SCE and SoCal Gas services include energy efficiency customized solutions, energy efficiency calculate incentive program, and non-residential on-bill financing program.

ENERGY EFFICIENCY POTENTIAL: COMMERCIAL AND INDUSTRIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

GATEWAY CITIES: ENERGY EFFICIENCY POTENTIAL: GOVERNMENT AND NON-PROFIT BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for government and non-profit owned buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for the Gateway Cities in the statistics table, below.

**Billions
of \$**
are on the table
for energy
efficiency and
clean energy
investments in
California.

		Government and Non-profit Buildings in the Gateway Cities		All Buildings in the Gateway Cities	
MAP STATISTICS	# of government and non-profit buildings	1,660	# of total buildings in the Gateway Cities	315,377	
	% built before 1978	91%	% built before 1978	92%	
	Average square footage of pre-1978 buildings	15,296	Average square footage of pre-1978 buildings	3,409	
	% built in or after 1978	9%	% built in or after 1978	8%	
	Average square footage of post-1978 buildings	19,542	Average square footage post-1978 buildings	9,762	

FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The Gateway Cities could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would save taxpayers' money while supporting local green jobs and reducing pollution.

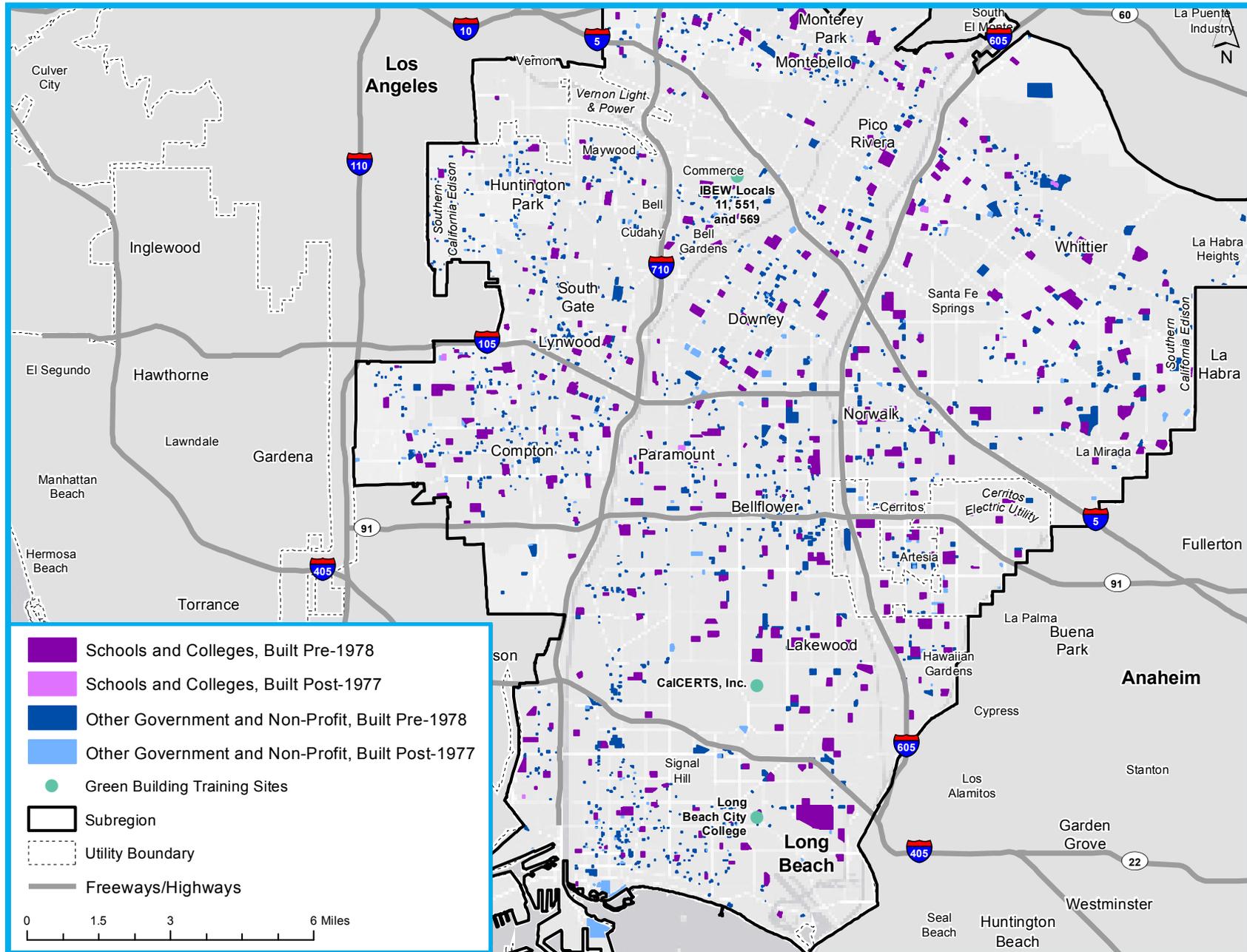
Municipal buildings will be eligible recipients for Proposition 39 funds. The map identifies the municipal buildings constructed before 1978, an indication of likely cost effectiveness for a retrofit.

Schools are pulled out because schools will be prime recipients of Proposition 39 funds. As the map indicates, numerous schools were constructed pre-1978, before energy efficiency building codes were in effect.

Green job training sites will also be supported by Proposition 39 funds. The map identifies green buildings training sites that could be eligible for these funds.



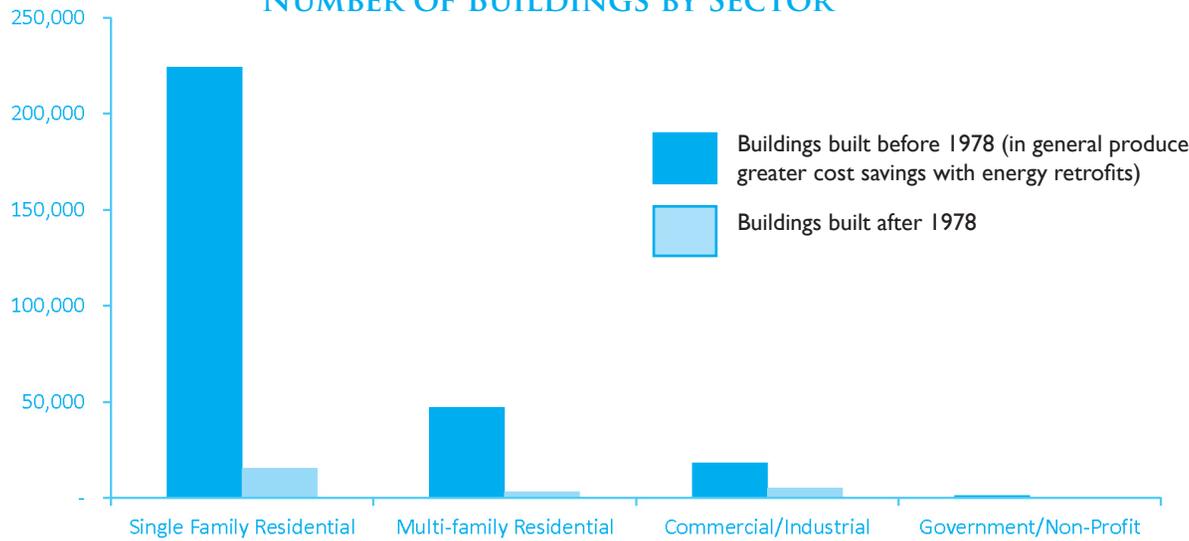
ENERGY EFFICIENCY POTENTIAL: GOVERNMENT AND NON-PROFIT



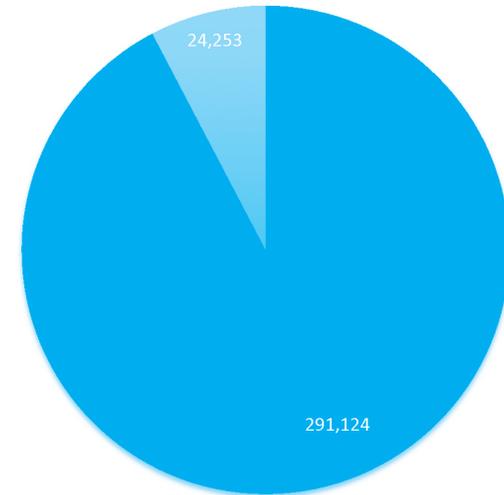
Source: Building age data: Los Angeles County Assessor; Schools: Extracted from Points of Interest (LMS Data) from LA County GIS Portal; Green building training site data: USC Program for Environmental and Regional Equity. Original data from Environment California Research and Policy Center, 2011. "Building a Clean Energy Workforce: Preparing Californians for New Opportunities in the State's Green Economy."

GATEWAY CITIES: ENERGY EFFICIENCY POTENTIAL SUMMARY

NUMBER OF BUILDINGS BY SECTOR



ALL BUILDINGS IN THE GATEWAY CITIES

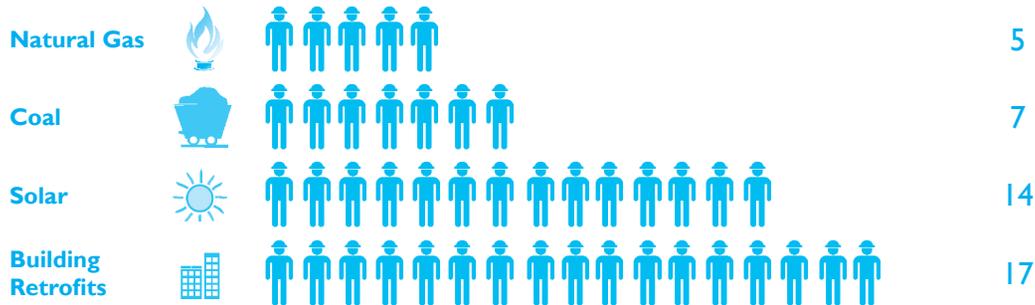


LINKING INVESTMENTS IN WORKFORCE TRAINING TO SUSTAINABLE JOBS

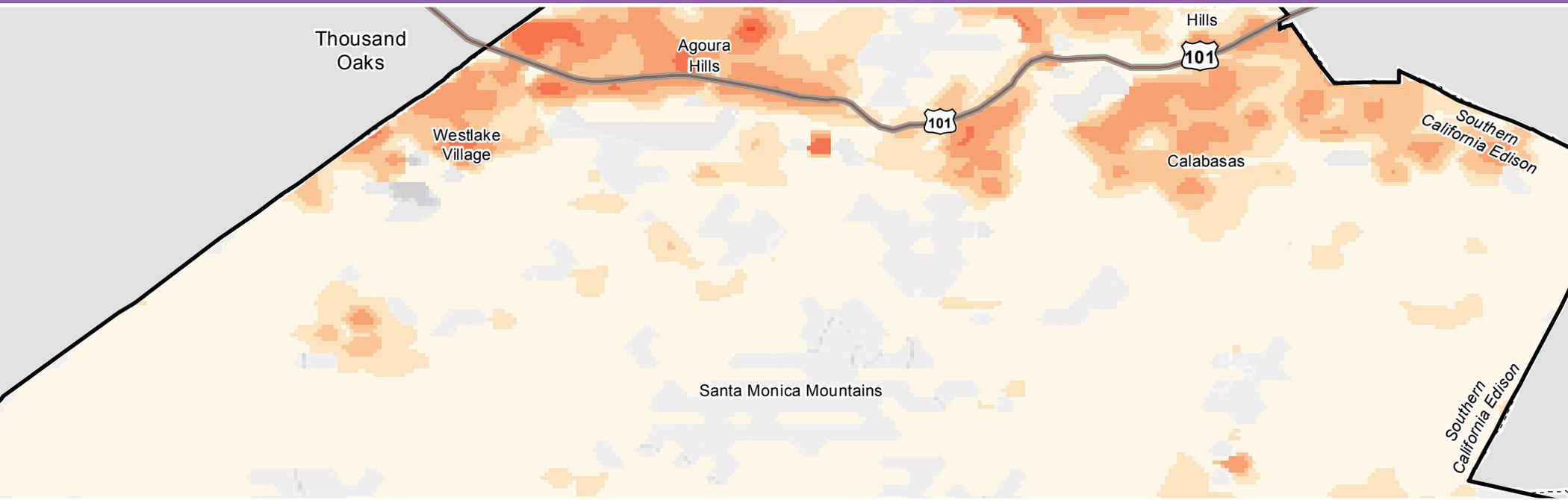
“Sustainable jobs” pay prevailing wages and provide healthcare and access to opportunities for wage growth.²³ To effectively link Proposition 39’s funding for worker training with sustainable jobs, policymakers should consider best practices for a strong pipeline between training programs and careers. For example, the Los Angeles Community College District and the City of Los Angeles have approved project labor/stabilization agreements, or contracts with labor unions, that include goals for local hires and apprentices workers. Apprenticeship programs can create a strong pipeline between education and sustainable jobs and careers.

THE TRUTH ABOUT JOB CREATION

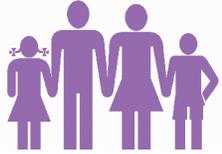
Energy efficiency investments create costs savings for the customer and jobs for the region. Invest \$1 million in the following industries, you get this many jobs.²⁴



PROFILE OF CLEAN ENERGY INVESTMENT POTENTIAL LAS VIRGENES MALIBU



LAS VIRGENES MALIBU: VULNERABILITY TO CLIMATE CHANGE



The map can inform spatially-targeted strategies to reduce health risks from climate change.

Knowing what communities are vulnerable to climate change, as identified in the map and table below, enables policymakers to identify strategies to reduce risk and improve community resiliency. Climate change will increase health issues in many communities.

This map illustrates the extent of vulnerability to climate change in the communities (at the census tract level) of Las Virgenes Malibu. The data comes from the California Environmental Health Tracking Program (CEHTP) of the California Department of Public Health, which created an index of 7 indicators.¹³ These indicators, of climate change impacts and a community’s adaptive capacity, included:

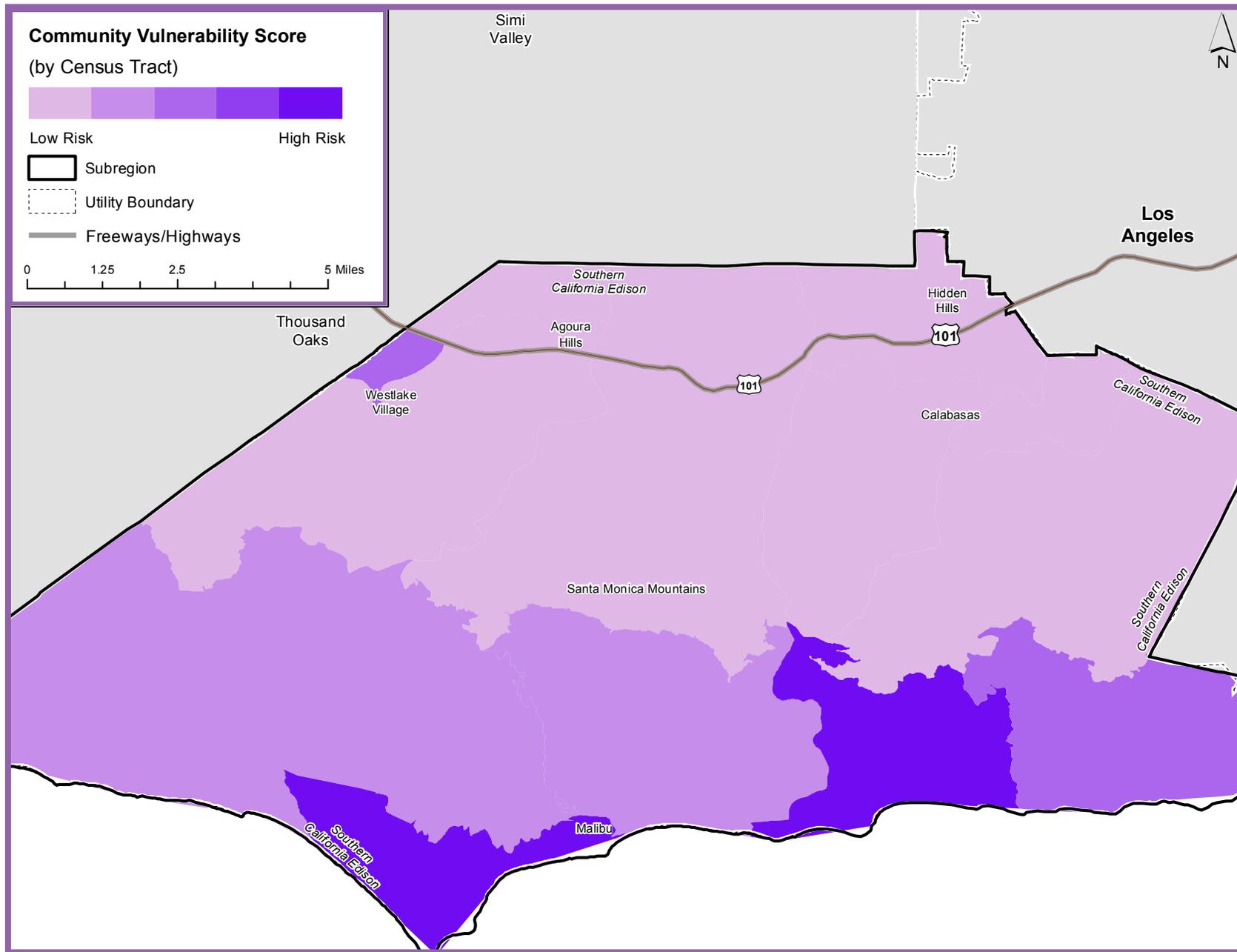
- Air conditioning (AC) ownership;
- Land cover characteristics (tree canopy and impervious surfaces);
- Access to transportation (transit and household car access);
- Social vulnerabilities (elderly living alone);
- Flood risk;
- Wildfire risk; and
- Sea level rise.

Note that the index does not include temperature predication data under climate change. Temperature predictions under climate change are shown in the Mid-Mentury Warming in the LA Region map.

Community Vulnerability to Climate Change in Las Virgenes Malibu			
Zip code(s) for which the census tract (in parentheses) falls within		Level*	Scores (on a scale of 1-3.778 with 3.778 being the most vulnerable)
90265 and 91302	(06037800502)	Top tier	3.000
90265 and 91302	(06037800502)	Top tier	3.000
90265	(06037800403)	Top tier	3.000
90272	(06037262602)	2nd tier	2.625
90290 and 90265	(06037800501)	3rd tier	2.500
90290 and 90265	(06037800501)	3rd tier	2.500
91302, 91364, and 91367	(06037137000)	3rd tier	2.375
91302, 91364, and 91367	(06037137000)	3rd tier	2.375
91302, 91364, and 91367	(06037137000)	3rd tier	2.375
90265 and 90263	(06037800401)	4th tier	2.250

*Relative to other census tracts in California

VULNERABILITY TO CLIMATE CHANGE



Source: California Environmental Health Tracking Program, August 2011. "Community Vulnerabilities to Climate Change." Environmental Health Investigations Branch, California Department of Public Health. Final report available at www.cehtp.org/p/climate_population_vulnerabilities.

LAS VIRGENES MALIBU: ENVIRONMENTAL HEALTH RISK



The map will inform the investment plan for the Greenhouse Gas Reduction Fund.

This map illustrates the screening tool that the State of California developed to identify communities disproportionately burdened by and vulnerable to multiple sources of pollution. Called the California Communities Environmental Health Screening Tool 2.0 (CalEnviroTool 2.0), it generates environmental health risk scores and rankings for every census tract in the state, incorporating data from 19 indicators within two categories: 1) pollution burden, exposure and environmental effect indicators; and 2) population characteristics, sensitive populations and socioeconomic factor indicators.¹⁴ High rankings indicate relatively high vulnerability.

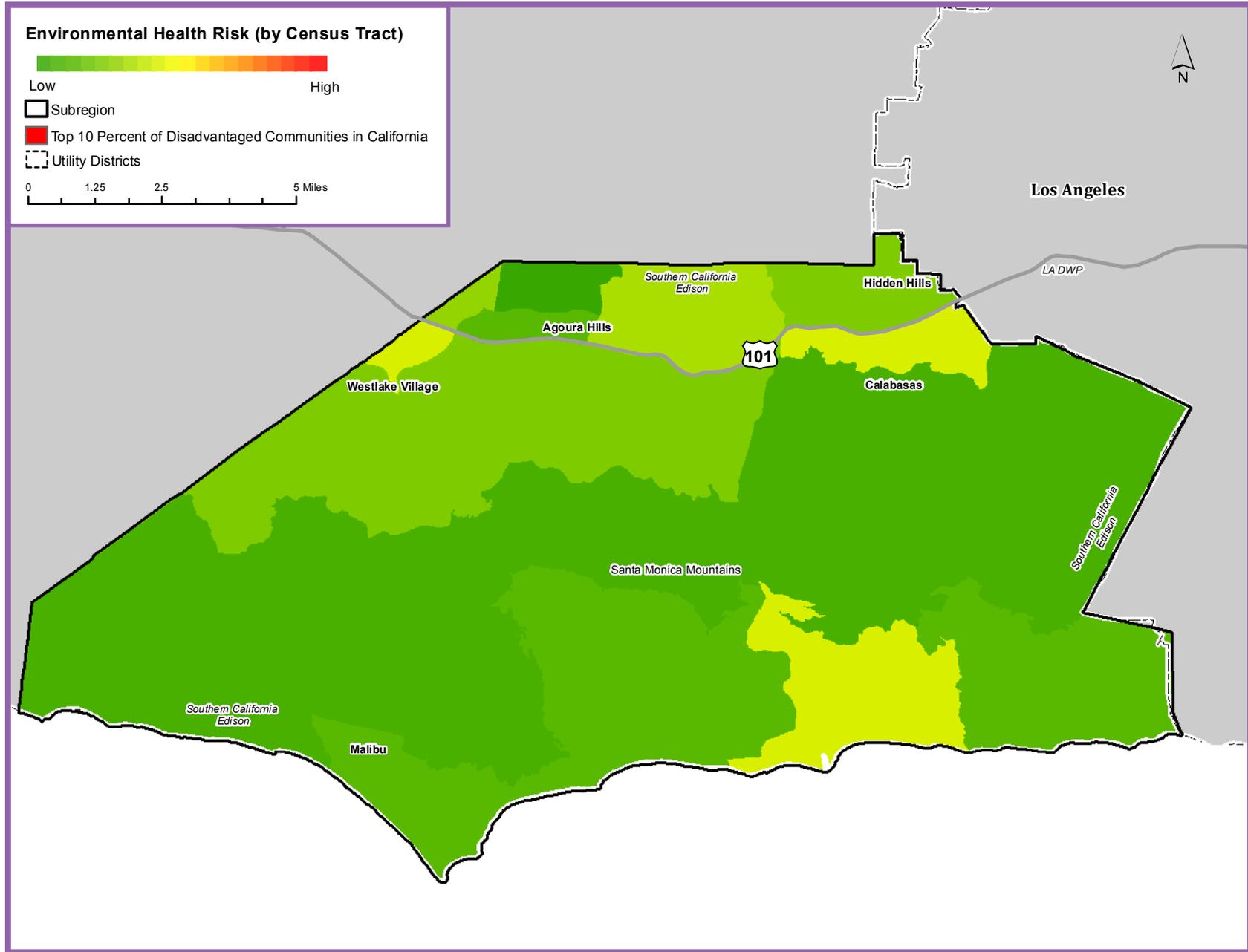
CalEnviroScreen will inform the State's identification of disadvantaged communities pursuant to **Senate Bill 535** (SB 535). SB 535 requires that at least 25 percent of monies from the **Greenhouse Gas Reduction Fund** be directed to projects that benefit disadvantaged communities and at least 10 percent of program funding expended will be directed to projects located in disadvantaged communities. With revenue from the State's cap-and-trade program, the Greenhouse Gas Reduction Fund is expected to soon generate billions of dollars every year for projects that reduce greenhouse gas emissions, create jobs and other co-benefits.

It is expected that communities with environmental risk scores in the top 20 percent will be prioritized for funding under the Greenhouse Gas Reduction Fund. To be conservative, however, the following map outlines with light grey lines communities with environmental risks scores in the top 10 percent. This map and others in the series, can help decision-makers and community members think strategically about where and what to invest in, to reduce pollution, expand clean energy generation, and create jobs.

Results from the California Communities Environmental Health Screening Tool: Highest Scores for Las Virgenes Malibu				
Zip code(s) for which the census tract (in parentheses) falls within		Tier*	Percentile rank*	Score
90265 and 91302	(6037800504)	12th Tier	41-45%	16.84
91361	(6037800325)	12th Tier	41-45%	16.79
91302	(6037800204)	12th Tier	41-45%	15.70
91301	(6037800327)	14th Tier	31-35%	13.76
91301 and 91302	(6037800328)	14th Tier	31-35%	13.11
91362	(6037800331)	15th Tier	26-30%	12.26
91301, 91361 and 90265	(6037800326)	16th Tier	21-25%	10.91
91302	(6037800203)	16th Tier	21-25%	10.64
91301 and 91302	(6037800329)	16th Tier	21-25%	10.55
90265	(6037800408)	18th Tier	11-15%	8.83

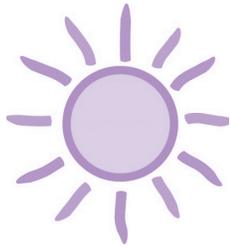
*Compared to other census tracts in California

ENVIRONMENTAL HEALTH RISK



Source: California Environmental Protection Agency and the Office of Environmental Health Hazard Assessment, "California Communities Environmental Health Screening Tool Version 2.0" (2014). <http://oehha.ca.gov/ej/ces2.html>. For the purpose of this report, the highest scoring census tracts are identified as disadvantaged communities and are delineated with a grey border and red color.

LAS VIRGENES MALIBU: SOLAR CAPACITY



Las Virgenes Malibu is endowed with both bountiful sunshine and numerous buildings that offer valuable siting opportunities for solar energy generation. This map identifies the rooftop solar opportunities across neighborhoods in Las Virgenes Malibu.¹⁶ Economic development planners, building owners and anyone interested in expanding solar power can use this map, along other parcel level analyses,¹⁷ to identify potential investment opportunities.¹⁸ Because cost-effectiveness increases with the size of a solar installation, the map statistics table presents the number of potential solar projects by size and the total rooftop potential.

257
job years could be created if 5% of rooftop solar potential in Las Virgenes Malibu was realized.¹⁹

MAP STATISTICS	Single Family	95%	Total Rooftop Solar Potential	205 megawatts
	Multi-unit Residential	1%	Total Potential Sites	18,005 rooftops
	Commercial & Industrial	3%	Median Rooftop Availability	575 sq. ft.
	Government & Non-profit	<1%	Median Potential of Available Parcels	5.52 kilowatts

Jobs: If just 5% of total rooftop solar potential in Las Virgenes Malibu was realized, approximately 257 job years would be created.¹⁹

Pollution Reduction: This would also eliminate 10,953 metric tons of carbon dioxide pollution each year.²⁰

FUNDING OPPORTUNITIES

State policies that expand opportunities for solar include the potentially billions of dollars from Proposition 39’s Clean Energy Job Creation Fund as well as the AB 32 Greenhouse Gas Reduction Fund (cap-and-trade auction proceeds). In order for Las Virgenes Malibu to benefit, policymakers will have to be vigilant to ensure that residents, businesses and schools have access to these opportunities.

Job training will also be supported by Proposition 39.

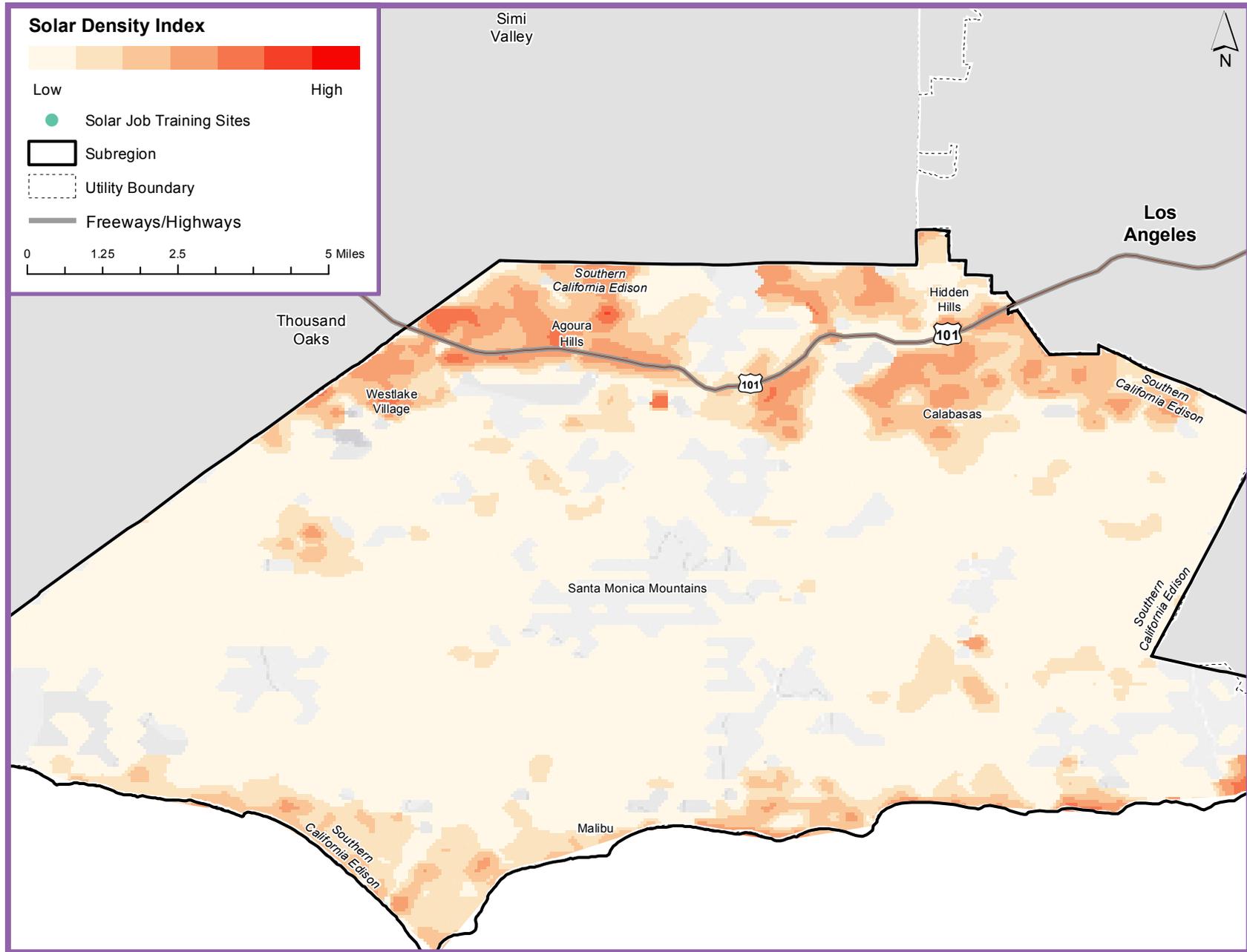
Local policies also provide financial incentives for solar investments. Through the California Solar Initiative, Southern California Edison offers incentives including rebates on solar equipment and installation of photovoltaics and solar heating systems. Residential and commercial customers could also be eligible for Net Energy Metering, which gives property owners credit for the electricity generated by the solar system on their rooftop.



Parcels with the Largest Potential Solar Projects in Las Virgenes Malibu

Rank	Potential (kW)	Parcel Address	Zip Code	Parcel Use Description
1	3,277	29500 Heathercliff Rd; Malibu	90265	Mobile Home Parks
2	1,998	5308 Derry Ave; Agoura Hills	91301	Light Manufacturing
3	1,679	31303 Agoura Rd; Westlake Village	91363	Office Buildings
4	1,466	31300 Via Colinas; Westlake Village	91362	Light Manufacturing
5	1,309	2 Dole Dr; Westlake Village	91362	Hotel & Motels

SOLAR CAPACITY



Source: Original solar capacity data: Los Angeles County, "Los Angeles County Solar Map." solarmap.lacounty.gov. Data modified by UCLA for the "Los Angeles County Solar Atlas," 2011, from which the above map was created. innovation.luskin.ucla.edu. Solar training sites data: USC Program for Environmental and Regional Equity, 2011. "Empowering LA's Solar Workforce." Sponsored by the Los Angeles Business Council. Original data from Environment California Research and Policy Center, 2011. "Building a Clean Energy Workforce: Preparing Californians for New Opportunities in the State's Green Economy."

LAS VIRGENES MALIBU: ENERGY EFFICIENCY POTENTIAL: RESIDENTIAL BUILDINGS/HOMES



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for residential homes.²¹ Buildings constructed before 1978 in general produce greater cost savings when retrofitted than buildings built after 1978.²² The potential for energy efficiency investments is summarized for Las Virgenes Malibu in the map statistics table.

40% of homes in Las Virgenes Malibu were built before the state's energy efficiency building codes.

Simple retrofits can save money and make the home more comfortable year round.

MAP
STATISTICS

Residential Buildings in Las Virgenes Malibu		All Buildings in Las Virgenes Malibu	
# of single-family homes	17,151	# of total buildings in Las Virgenes Malibu	17,905
% built before 1978	40%	% built before 1978	40%
Average square footage of pre-1978 buildings	4,700	Average square footage of pre-1978 buildings	5,539
% built in or after 1978	60%	% built in or after 1978	60%
Average square footage of post-1978 buildings	5,350	Average square footage post-1978 buildings	6,388

FUNDING OPPORTUNITIES

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Local policies provide financial incentives to homeowners for energy efficiency investments. Through Energy Upgrade California™, incentives of up to \$4,500 are available to residential customers of Southern California Edison (SCE) and the Southern California Gas Company (SoCal Gas). Other programs include:

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LAS VIRGENES MALIBU: ENERGY EFFICIENCY POTENTIAL: MULTI-UNIT RESIDENTIAL BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for multi-unit residential buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for Las Virgenes Malibu in the map statistics table.

85% of apartments and other multi-unit residential buildings in Las Virgenes Malibu were built before the state's energy efficiency building codes.

The cheapest energy is the energy not used in the first place.

		Multi-unit Residential Buildings in Las Virgenes Malibu	All Buildings in Las Virgenes Malibu	
MAP STATISTICS	# of multi-unit residential buildings	224	# of total buildings in Las Virgenes Malibu	17,905
	% built before 1978	85%	% built before 1978	40%
	Average square footage of pre-1978 buildings	10,853	Average square footage of pre-1978 buildings	5,539
	% built in or after 1978	15%	% built in or after 1978	60%
	Average square footage of post-1978 buildings	59,161	Average square footage post-1978 buildings	6,388

FUNDING OPPORTUNITIES

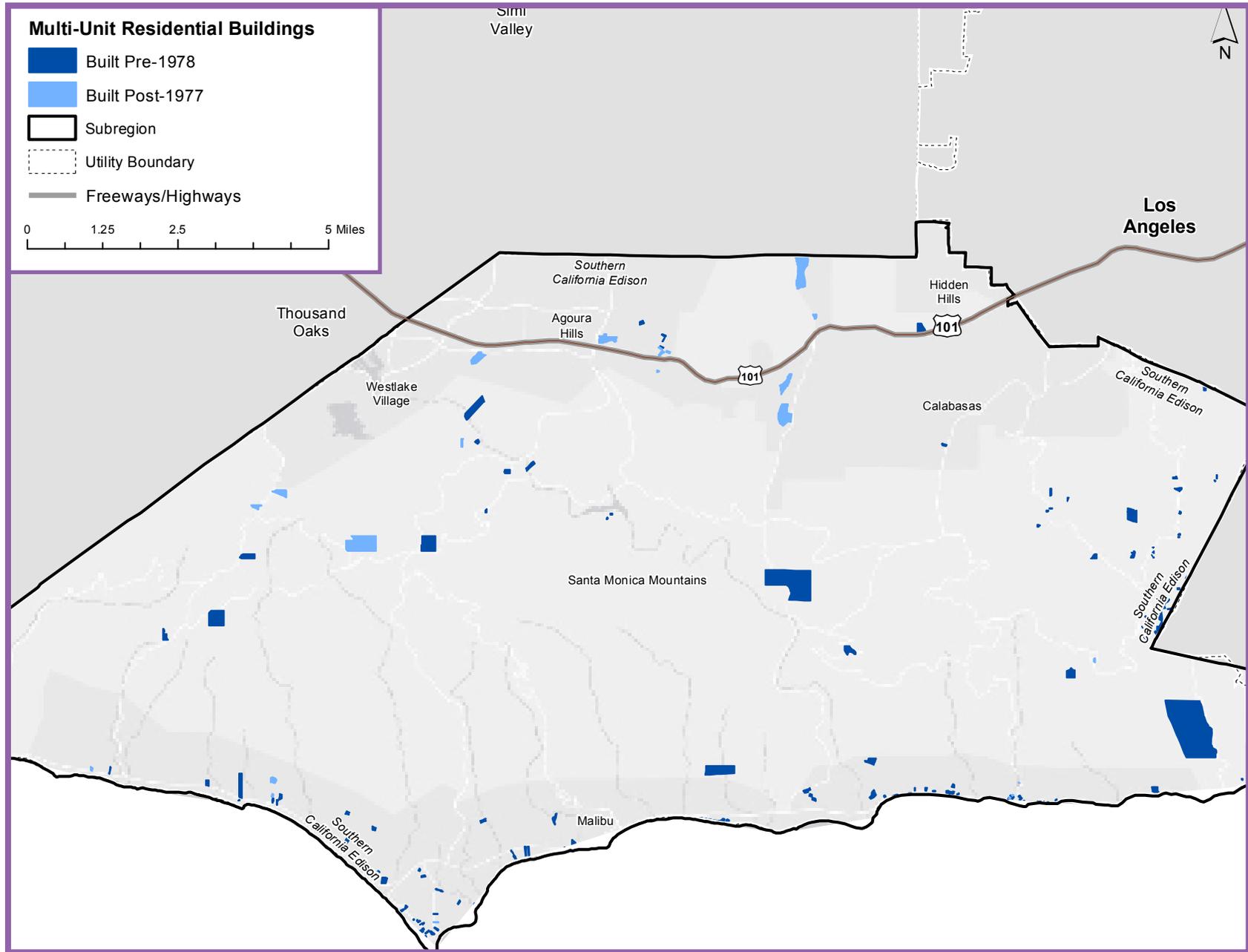
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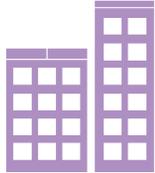
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ENERGY EFFICIENCY POTENTIAL: MULTI-UNIT RESIDENTIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

LAS VIRGENES MALIBU: ENERGY EFFICIENCY POTENTIAL: COMMERCIAL AND INDUSTRIAL BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for commercial and industrial buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for Las Virgenes Malibu in the statistics table, below.

30%
on average of the energy used in commercial buildings is wasted, according to the U.S. Environmental Protection Agency.

Retrofitting buildings to be energy efficient saves money and creates jobs.

MAP
STATISTICS

	Commercial and Industrial Buildings in Las Virgenes Malibu		All Buildings in Las Virgenes Malibu	
# of commercial and industrial buildings	478	# of total buildings in Las Virgenes Malibu	17,905	
% built before 1978	35%	% built before 1978	40%	
Average square footage of pre-1978 buildings	22,296	Average square footage of pre-1978 buildings	5,539	
% built in or after 1978	65%	% built in or after 1978	60%	
Average square footage of post-1978 buildings	33,984	Average square footage post-1978 buildings	6,388	

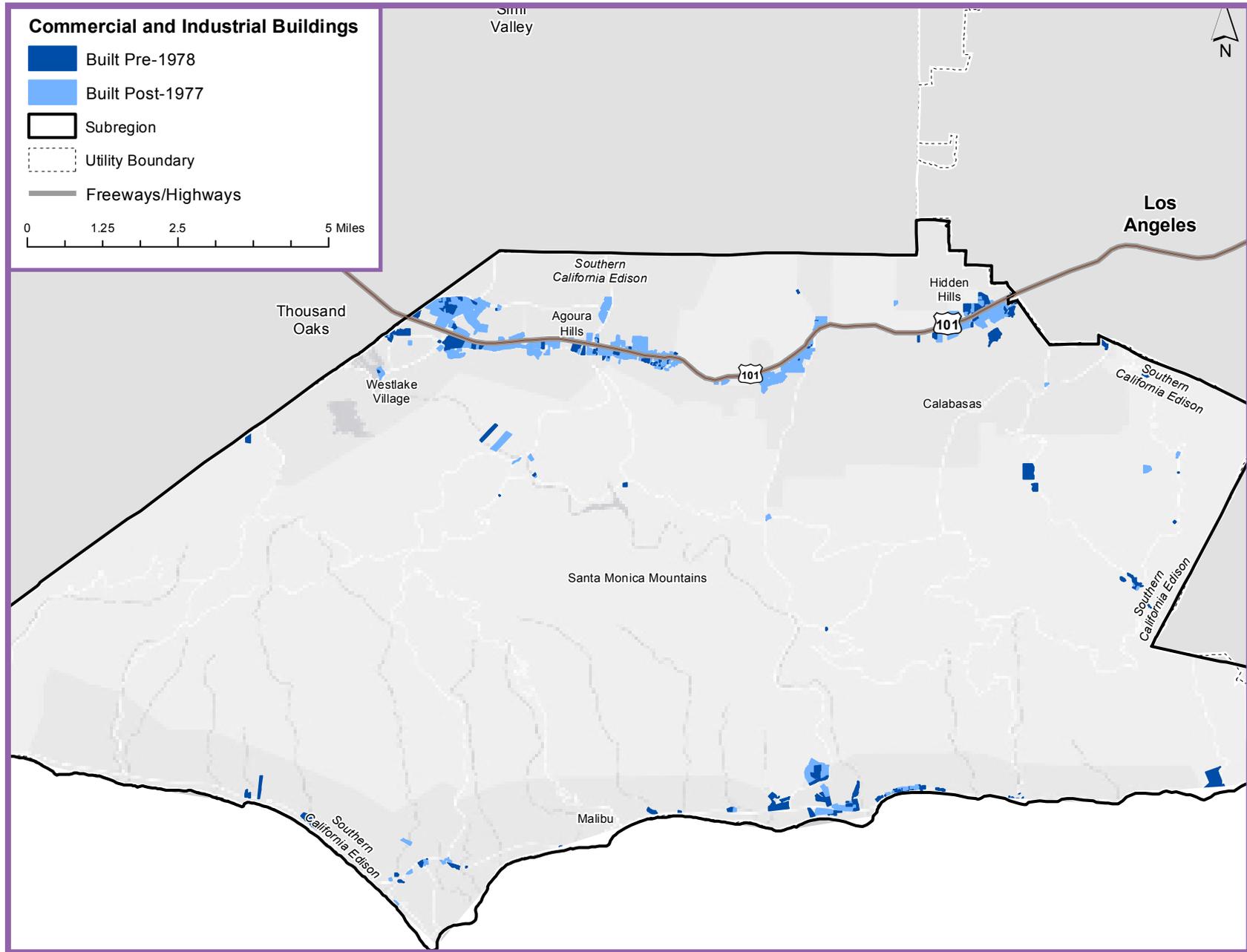
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Provides rebates paid up to 100% on energy upgrades for lighting, temperature control, refrigerators and water heaters.
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ENERGY EFFICIENCY POTENTIAL: COMMERCIAL AND INDUSTRIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

LAS VIRGENES MALIBU: ENERGY EFFICIENCY POTENTIAL: GOVERNMENT AND NON-PROFIT BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for government and non-profit owned buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for Las Virgenes Malibu in the statistics table, below.

**Billions
of \$**
are on the table
for energy
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clean energy
investments in
California.

MAP
STATISTICS

Government and Non-profit Buildings in Las Virgenes Malibu		All Buildings in Las Virgenes Malibu	
# of government and non-profit buildings	52	# of total buildings in Las Virgenes Malibu	17,905
% built before 1978	63%	% built before 1978	40%
Average square footage of pre-1978 buildings	61,183	Average square footage of pre-1978 buildings	5,539
% built in or after 1978	37%	% built in or after 1978	60%
Average square footage of post-1978 buildings	30,424	Average square footage post-1978 buildings	6,388

FUNDING OPPORTUNITIES

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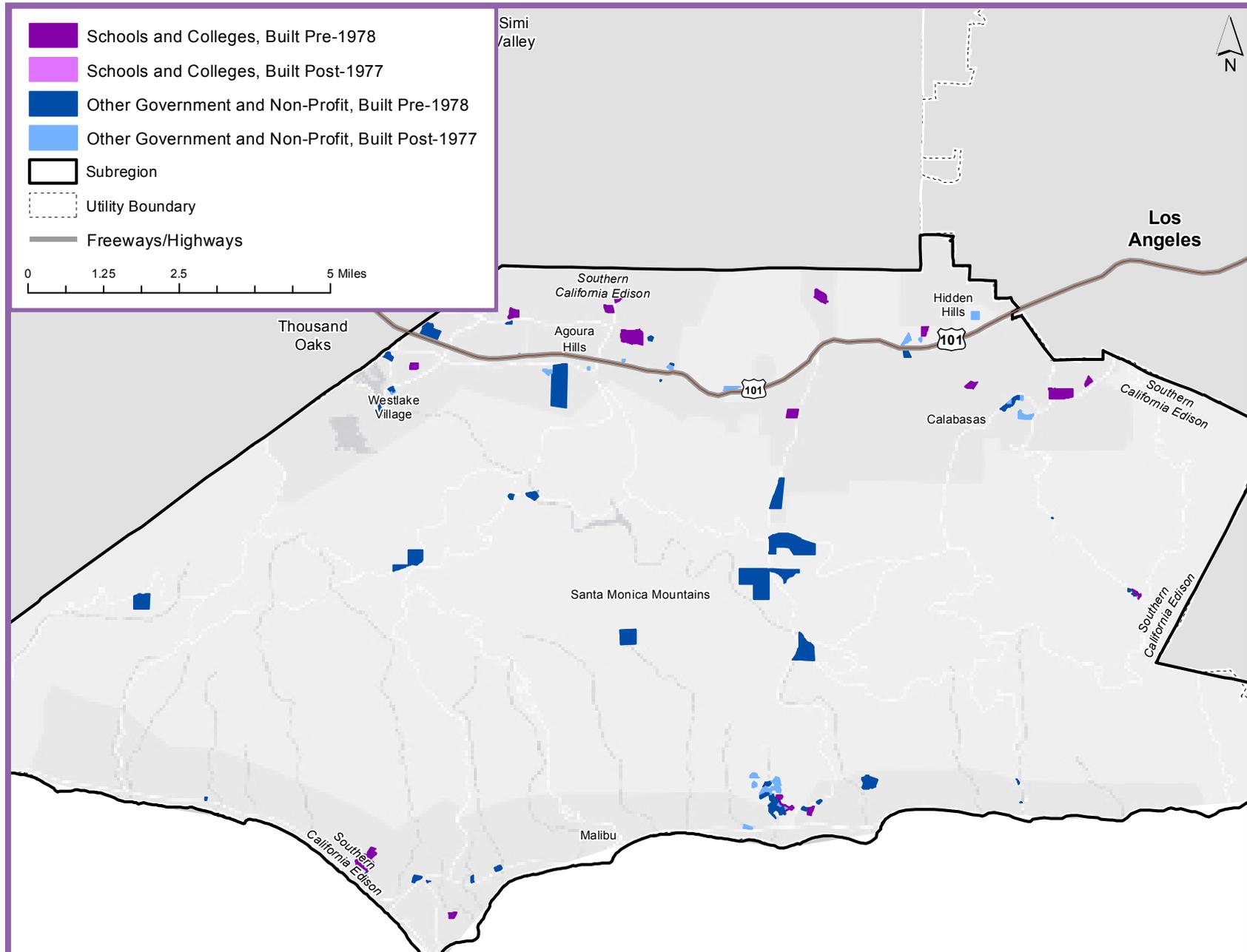
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Green job training sites will also be supported by Proposition 39 funds. The map identifies green buildings training sites that could be eligible for these funds.



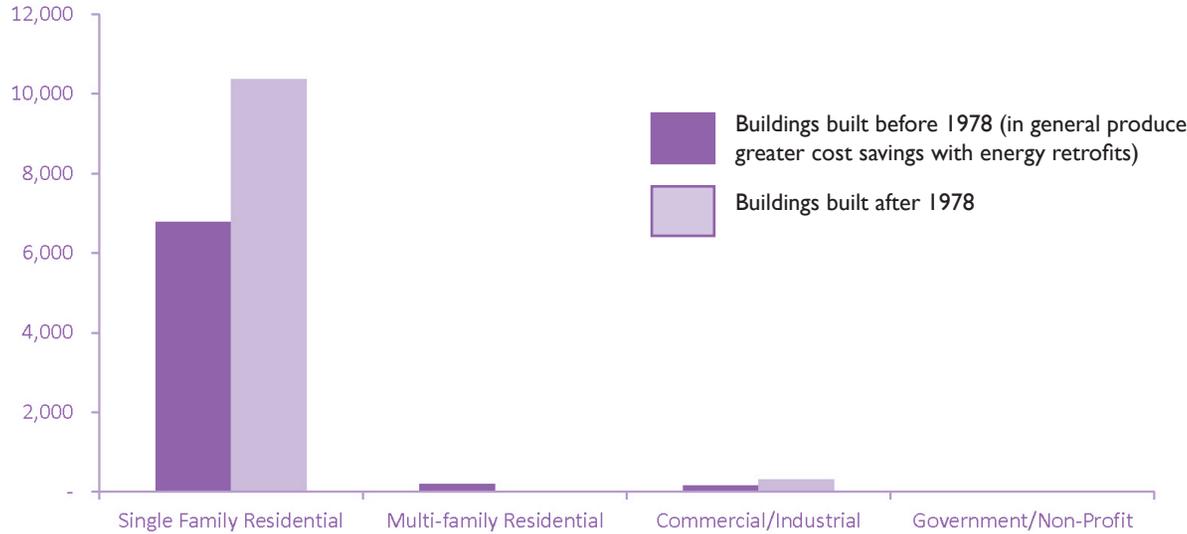
ENERGY EFFICIENCY POTENTIAL: GOVERNMENT AND NON-PROFIT



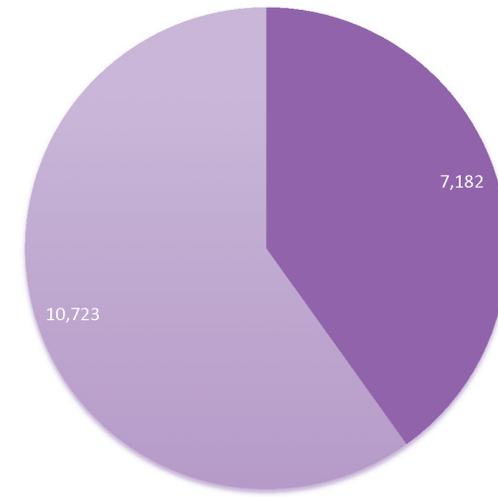
Source: Building age data: Los Angeles County Assessor; Schools: Extracted from Points of Interest (LMS Data) from LA County GIS Portal; Green building training site data: USC Program for Environmental and Regional Equity. Original data from Environment California Research and Policy Center, 2011. "Building a Clean Energy Workforce: Preparing Californians for New Opportunities in the State's Green Economy."

LAS VIRGENES MALIBU: ENERGY EFFICIENCY POTENTIAL SUMMARY

NUMBER OF BUILDINGS BY SECTOR



ALL BUILDINGS IN LAS VIRGENES MALIBU

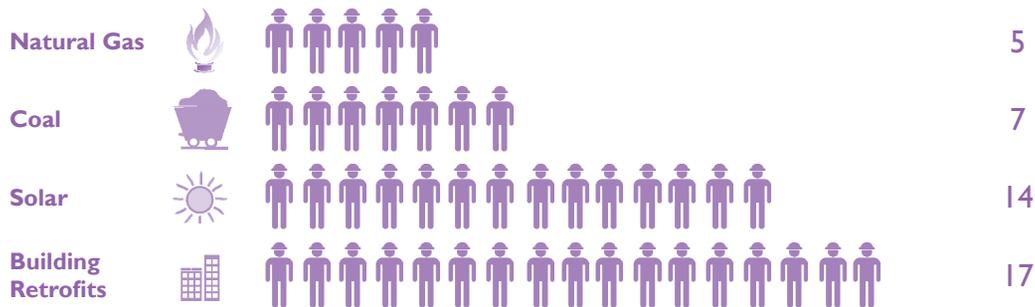


LINKING INVESTMENTS IN WORKFORCE TRAINING TO SUSTAINABLE JOBS

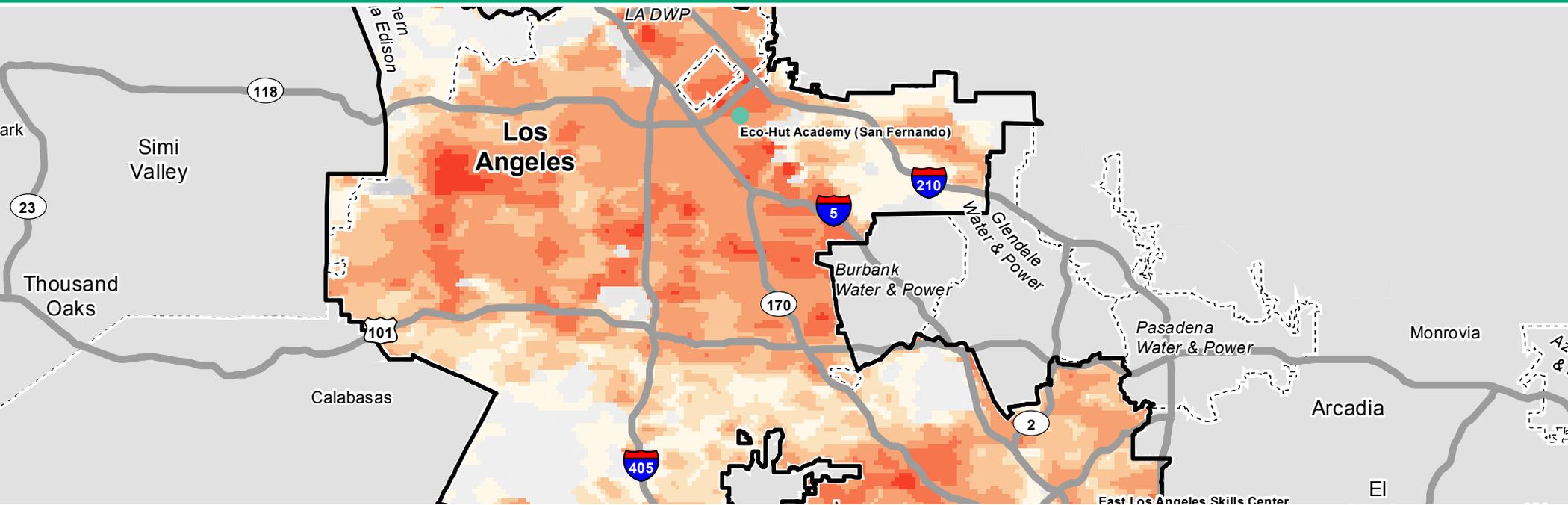
“Sustainable jobs” pay prevailing wages and provide healthcare and access to opportunities for wage growth.²³ To effectively link Proposition 39’s funding for worker training with sustainable jobs, policymakers should consider best practices for a strong pipeline between training programs and careers. For example, the Los Angeles Community College District and the City of Los Angeles have approved project labor/stabilization agreements, or contracts with labor unions, that include goals for local hires and apprentices workers. Apprenticeship programs can create a strong pipeline between education and sustainable jobs and careers.

THE TRUTH ABOUT JOB CREATION

Energy efficiency investments create costs savings for the customer and jobs for the region. Invest \$1 million in the following industries, you get this many jobs.²⁴



PROFILE OF CLEAN ENERGY INVESTMENT POTENTIAL CITY OF LOS ANGELES



CITY OF LOS ANGELES: VULNERABILITY TO CLIMATE CHANGE



The map can inform spatially-targeted strategies to reduce health risks from climate change.

Knowing what communities are vulnerable to climate change, as identified in the map and table below, enables policymakers to identify strategies to reduce risk and improve community resiliency. Climate change will increase health issues in many communities.

This map illustrates the extent of vulnerability to climate change in the communities (at the census tract level) of the City of Los Angeles. The data comes from the California Environmental Health Tracking Program (CEHTP) of the California Department of Public Health, which created an index of 7 indicators.¹³ These indicators, of climate change impacts and a community's adaptive capacity, included:

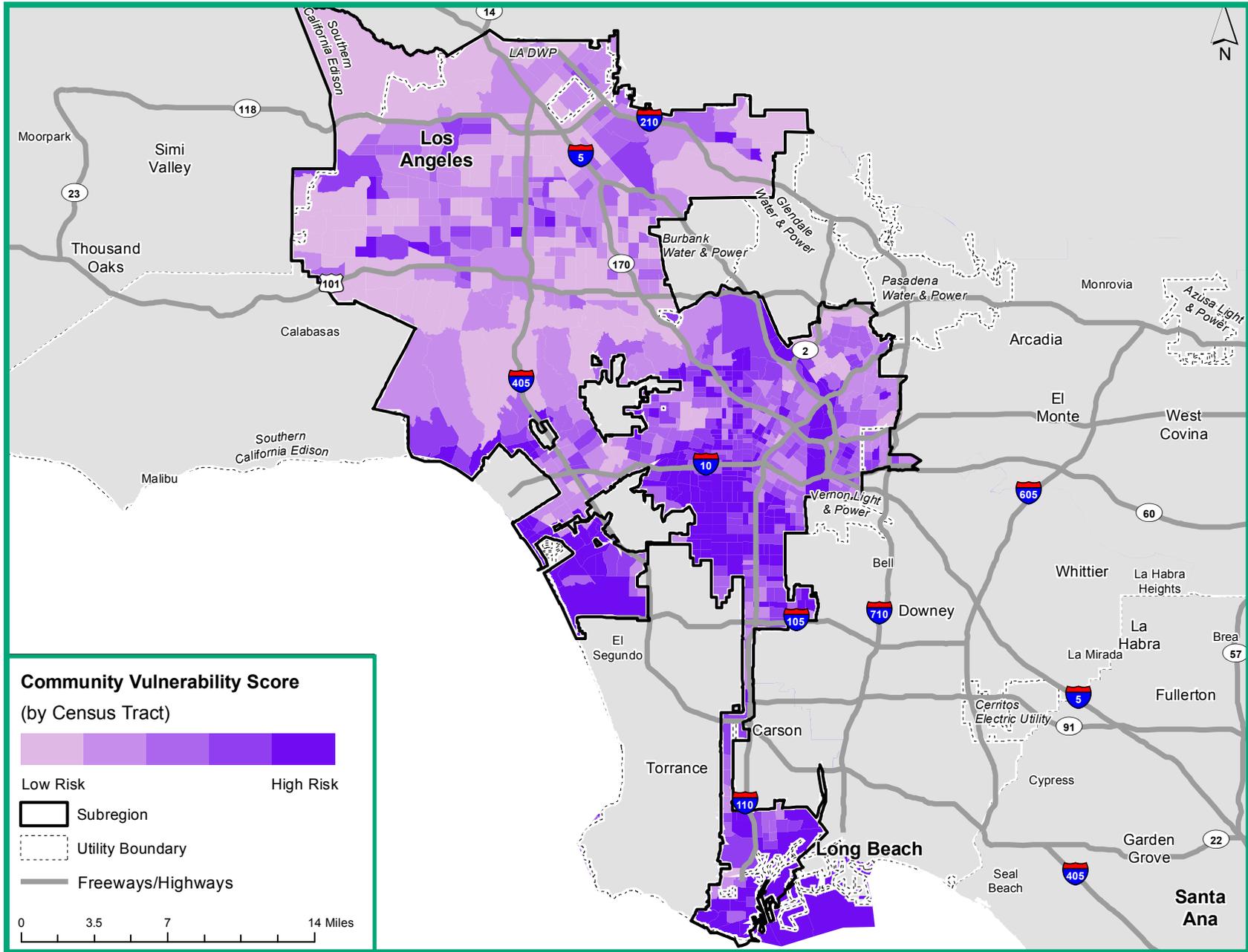
- Air conditioning (AC) ownership;
- Land cover characteristics (tree canopy and impervious surfaces);
- Access to transportation (transit and household car access);
- Social vulnerabilities (elderly living alone);
- Flood risk;
- Wildfire risk; and
- Sea level rise.

Note that the index does not include temperature predication data under climate change. Temperature predictions under climate change are shown in the Mid-Century Warming in the LA Region map.

Community Vulnerability to Climate Change in the City of Los Angeles			
Zip code(s) for which the census tract (in parentheses) falls within		Level*	Scores (on a scale of 1-3.778 with 3.778 being the most vulnerable)
90016 and 90008	(06037236202)	Top tier	3.778
90016 and 90008	(06037236202)	Top tier	3.778
90016 and 90008	(06037236201)	Top tier	3.750
90016 and 90008	(06037236201)	Top tier	3.750
90019	(06037212900)	Top tier	3.444
90731	(06037297120)	Top tier	3.444
90007	(06037221900)	Top tier	3.444
90731	(06037297600)	Top tier	3.375
90291	(06037273500)	Top tier	3.375
90744 and 90813	(06037294700)	Top tier	3.375

*Relative to other census tracts in California

VULNERABILITY TO CLIMATE CHANGE



Source: California Environmental Health Tracking Program, August 2011. "Community Vulnerabilities to Climate Change." Environmental Health Investigations Branch, California Department of Public Health. Final report available at www.cehtp.org/p/climate_population_vulnerabilities.



CITY OF LOS ANGELES: ENVIRONMENTAL HEALTH RISK

This map illustrates the screening tool that the State of California developed to identify communities disproportionately burdened by and vulnerable to multiple sources of pollution. Called the California Communities Environmental Health Screening Tool 2.0 (CalEnviroTool 2.0), it generates environmental health risk scores and rankings for census tracts throughout the state, incorporating data from 19 indicators within two categories: 1) pollution burden, exposure and environmental effect indicators; and 2) population characteristics, sensitive populations and socioeconomic factor indicators.¹⁴ High rankings indicate relatively high vulnerability. The map zooms into the City of Los Angeles, the epicenter of a region that faces elevated levels of environmental health vulnerabilities but should commensurately benefit from resources to address these issues.

The map will help inform investments from the Greenhouse Gas Reduction Fund.

CalEnviroScreen will inform the State's identification of disadvantaged communities pursuant to **Senate Bill 535 (SB 535)**. SB 535 requires that at least 25 percent of monies from the **Greenhouse Gas Reduction Fund** be directed to projects that benefit disadvantaged communities and at least 10 percent of program funding expended be directed to projects located in disadvantaged communities. With revenue from the State's cap-and-trade program, the Greenhouse Gas Reduction Fund is expected to soon generate billions of dollars every year for projects that reduce greenhouse gas emissions, create jobs and other co-benefits.

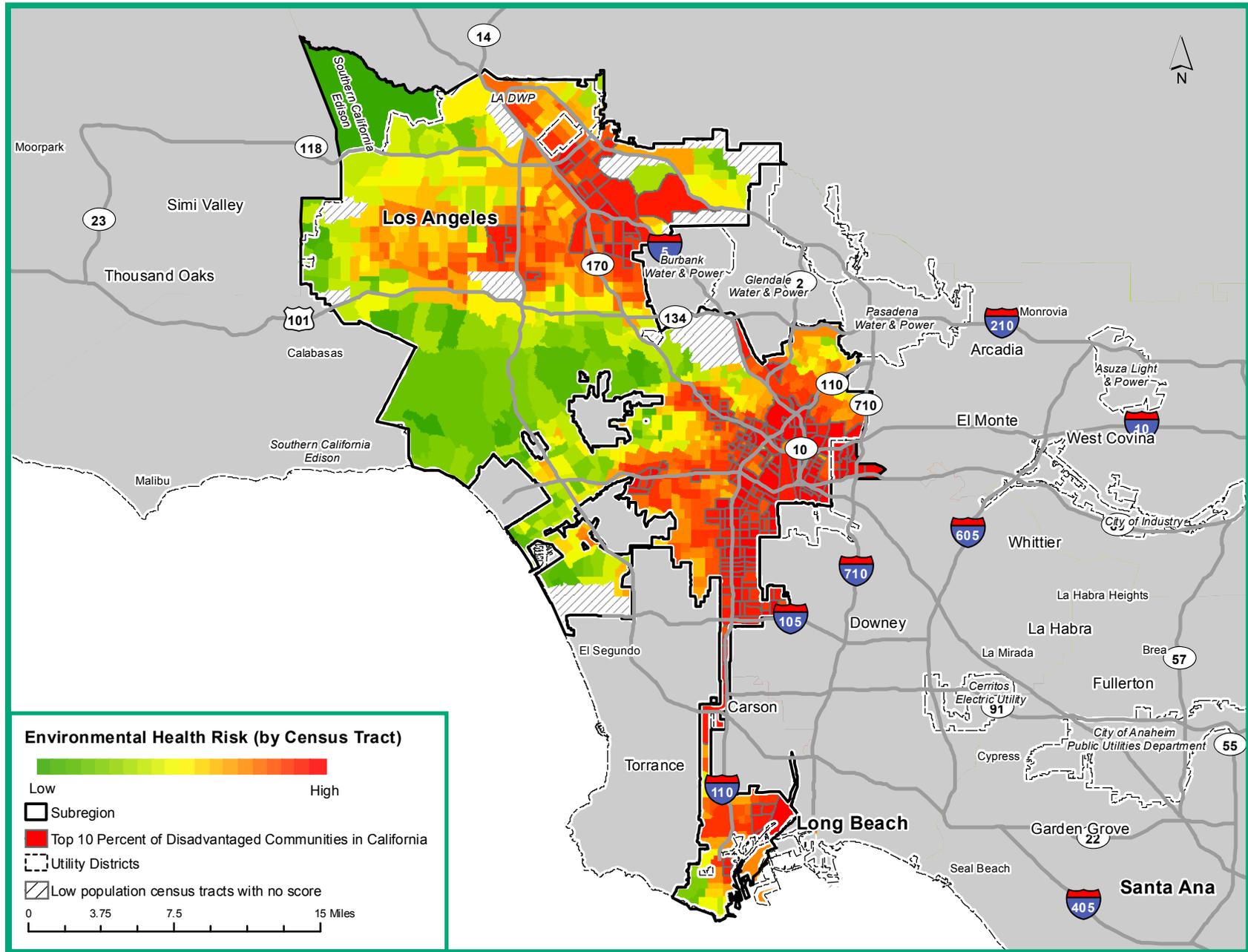
GHG REDUCTION FUND IS AN IMPORTANT OPPORTUNITY FOR LOS ANGELES

According to CalEnviroScreen, 40 percent of the population of the City of Los Angeles (1.5 million Angelenos) live in the top 20 percent of communities in California likely to be identified as disadvantaged for purposes of implementing SB 535.¹⁵ This means that Los Angeles is disproportionately vulnerable to environmental health risks but could particularly benefit from monies meant to reduce vulnerabilities and combat climate change. At the time of publication, the State had not officially determined the "disadvantaged community" threshold, but it is likely that the top 20 percent will be prioritized for funding under the Greenhouse Gas Reduction Fund. To be conservative, however, the map outlines with light grey lines the communities with environmental risk scores in that top 10 percent of communities. This map and others in the series, can help decision-makers and community members think strategically about where and what to invest in, to reduce pollution, expand clean energy generation, and create jobs.

Results from the California Communities Environmental Health Screening Tool: Highest Scores for the City of Los Angeles				
Zip code(s) for which the census tract (in parentheses) falls within		Tier*	Percentile rank*	Score
90023 and 90033	(6037206050)	Top Tier	96-100%	62.70
90033	(6037203100)	Top Tier	96-100%	60.15
90012 and 90013	(6037206200)	Top Tier	96-100%	57.92
90023 and 90033	(6037204600)	Top Tier	96-100%	56.53
90033	(6037206032)	Top Tier	96-100%	54.03
90023	(6037204920)	Top Tier	96-100%	54.03
90031	(6037199700)	Top Tier	96-100%	53.65
90023	(6037204700)	Top Tier	96-100%	53.64
90023	(6037205120)	Top Tier	96-100%	53.39

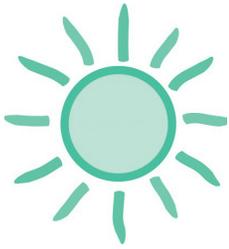
*Compared to other census tracts in California

ENVIRONMENTAL HEALTH RISK



Source: California Environmental Protection Agency and the Office of Environmental Health Hazard Assessment, "California Communities Environmental Health Screening Tool Version 2.0" (2014). <http://oehha.ca.gov/ej/ces2.html>. For the purpose of this report, the highest scoring census tracts are identified as disadvantaged communities and are delineated with a grey border and red color.

CITY OF LOS ANGELES: SOLAR CAPACITY



7,095
job years could be created if 5% of rooftop solar potential in the City of Los Angeles was realized.¹⁹

The City of Los Angeles is endowed with both bountiful sunshine and numerous buildings that offer valuable siting opportunities for solar energy generation. This map identifies the rooftop solar opportunities across neighborhoods in the City of Los Angeles.¹⁶ Economic development planners, building owners and anyone interested in expanding solar power can use this map, along other parcel level analyses,¹⁷ to identify potential investment opportunities.¹⁸ Because cost-effectiveness increases with the size of a solar installation, the map statistics table presents the number of potential solar projects by size and the total rooftop potential.

MAP STATISTICS	Single Family	71%	Total Rooftop Solar Potential	5,676 megawatts
	Multi-unit Residential	20%	Total Potential Sites	475,514 rooftops
	Commercial & Industrial	8%	Median Rooftop Availability	525 sq. ft.
	Government & Non-profit	1%	Median Potential of Available Parcels	5.04 kilowatts

Jobs: If just 5% of total rooftop solar potential in the City of Los Angeles was realized, approximately 7,095 job years would be created.¹⁹

Pollution Reduction: This would also eliminate 302,642 metric tons of carbon dioxide pollution each year.²⁰

FUNDING OPPORTUNITIES

State policies that expand opportunities for solar include the potentially billions of dollars from Proposition 39’s Clean Energy Job Creation Fund as well as the AB 32 Greenhouse Gas Reduction Fund (cap-and-trade auction proceeds). In order for the City of Los Angeles to benefit, policymakers will have to be vigilant to ensure that residents, businesses and schools have access to these opportunities.

Job training will also be supported by Proposition 39. The map identifies solar job training sites that could be eligible for these resources.

Local policies also provide financial incentives for solar investments. The Los Angeles Department of Water and Power (LADWP) offers the following:

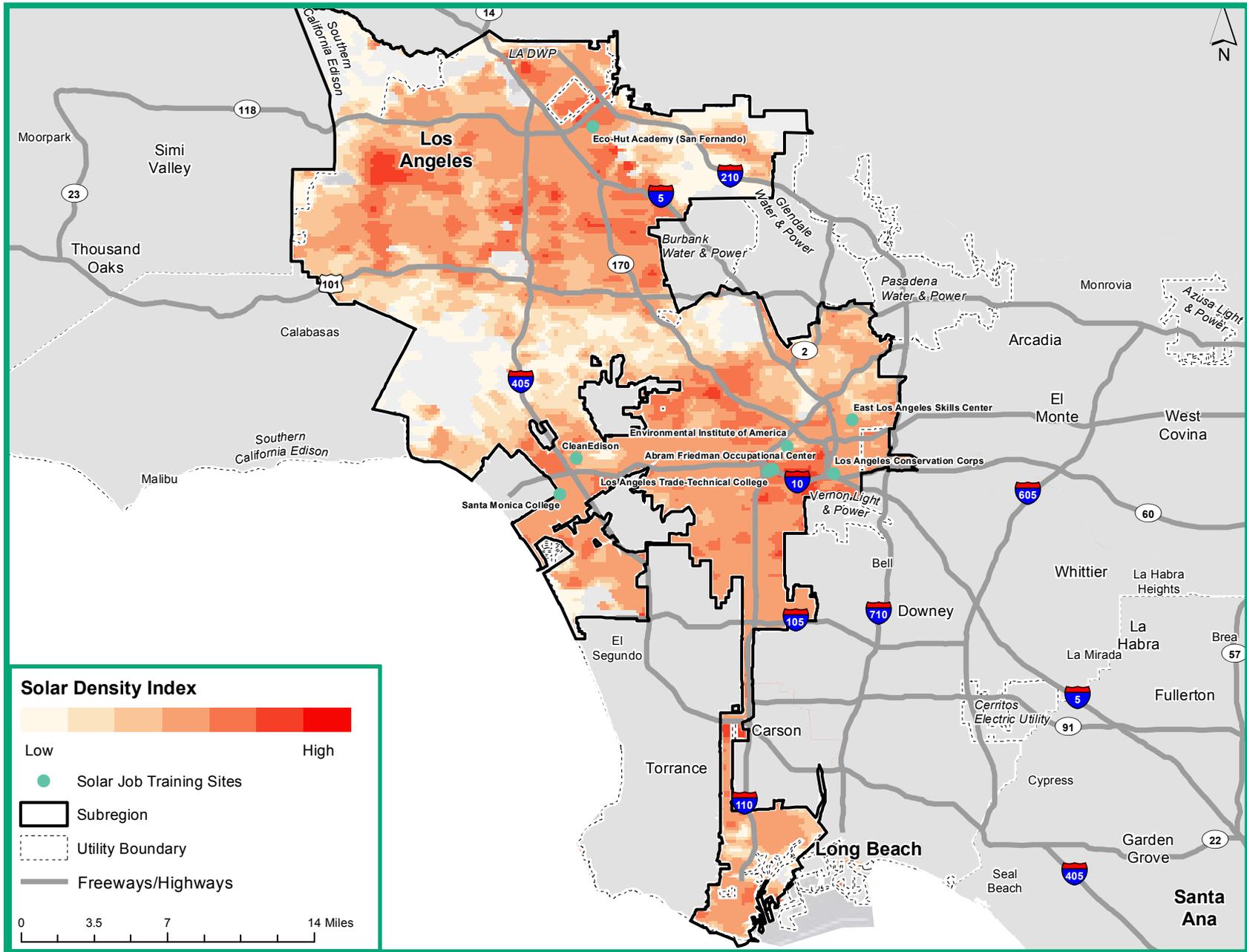
- The Solar Incentive Program provides qualifying customers with a “net meter.” If their solar system produces more energy than the customer uses, the excess energy is calculated as a credit on their bill.
- The Feed-in Tariff Set Pricing Program allows the LADWP to pay qualifying participants for the solar energy the participant generates.



Parcels with the Largest Potential Solar Projects in the City of Los Angeles

Rank	Potential (kW)	Parcel Address	Zip Code	Parcel Use Description
1	6,987	300 Westmont Dr; Los Angeles	90731	Warehousing, Distribution, Storage
2	6,296	3880 N Mission Rd; Los Angeles	90031	Warehousing, Distribution, Storage
3	4,797	400 Westmont Dr; Los Angeles	90731	Warehousing, Distribution, Storage
4	4,524	20525 Nordhoff St; Los Angeles	91311	Light Manufacturing
5	4,402	2501 S Alameda St; Los Angeles	90058	Warehousing, Distribution, Storage

SOLAR CAPACITY



Source: Original solar capacity data: Los Angeles County, "Los Angeles County Solar Map." solarmap.lacounty.gov. Data modified by UCLA for the "Los Angeles County Solar Atlas," 2011, from which the above map was created. innovation.luskin.ucla.edu. Solar training sites data: USC Program for Environmental and Regional Equity, 2011. "Empowering LA's Solar Workforce." Sponsored by the Los Angeles Business Council. Original data from Environment California Research and Policy Center, 2011. "Building a Clean Energy Workforce: Preparing Californians for New Opportunities in the State's Green Economy."

CITY OF LOS ANGELES: ENERGY EFFICIENCY POTENTIAL: RESIDENTIAL BUILDINGS/HOMES



90%
of homes in the City of Los Angeles were built before the state's energy efficiency building codes.

Simple retrofits can save money and make the home more comfortable year round.

The map highlights neighborhoods where potential for energy efficiency investments might be greatest for residential homes.²¹ Buildings constructed before 1978 in general produce greater cost savings when retrofitted than buildings built after 1978.²² The potential for energy efficiency investments is summarized for the City of Los Angeles in the map statistics table.

		Residential Buildings in the City of Los Angeles	All Buildings in the City of Los Angeles	
MAP STATISTICS	# of single-family homes	336,315	# of total buildings in the City of Los Angeles	474,397
	% built before 1978	90%	% built before 1978	89%
	Average square footage of pre-1978 buildings	2,752	Average square footage of pre-1978 buildings	3,749
	% built in or after 1978	10%	% built in or after 1978	11%
	Average square footage of post-1978 buildings	5,076	Average square footage post-1978 buildings	7,937

FUNDING OPPORTUNITIES

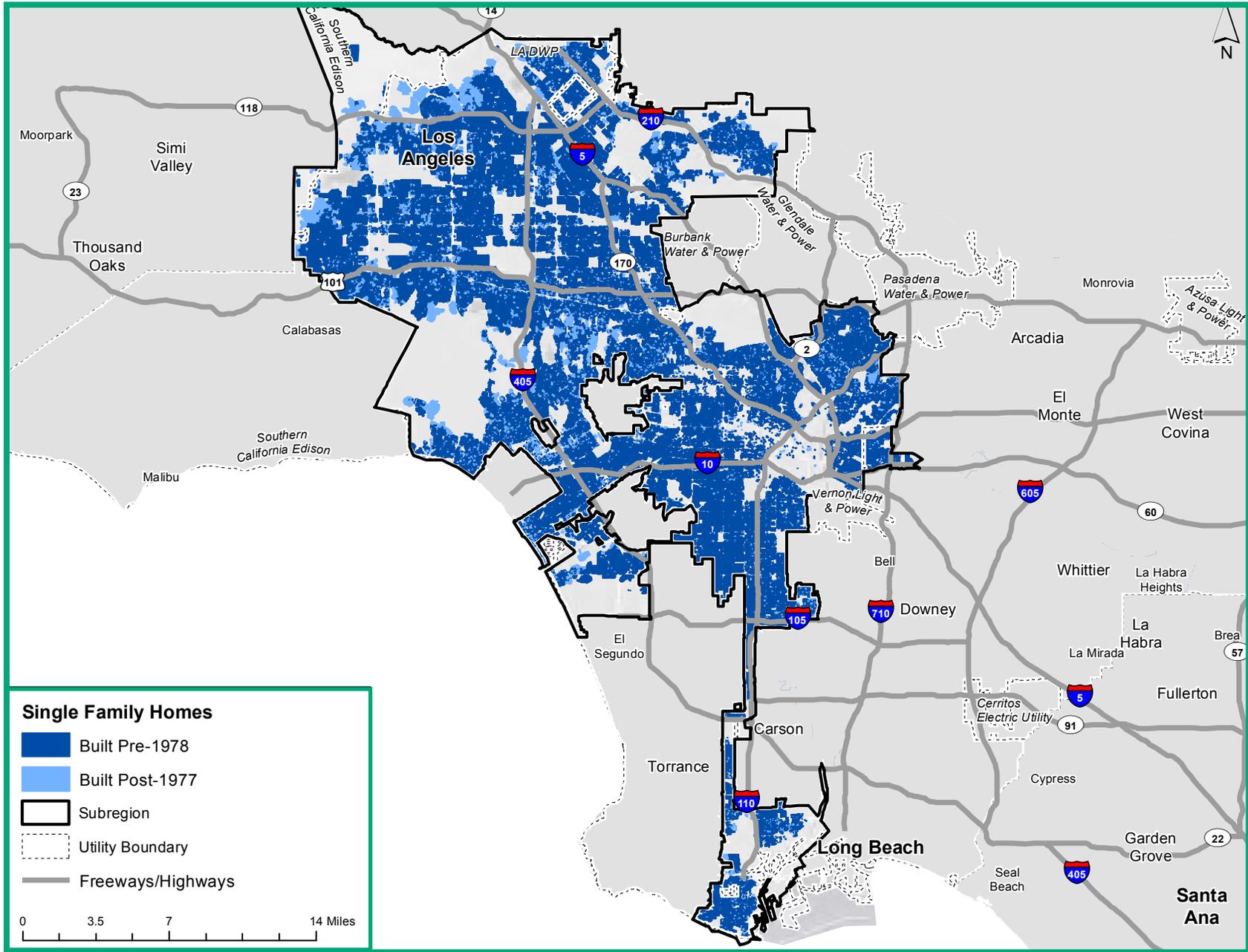
State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The City of Los Angeles could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would help consumers save money on their electricity bills, support local green jobs and reduce pollution.

Local policies provide financial incentives to homeowners for energy efficiency investments. Through Energy Upgrade California™, incentives of up to \$4,500 are available to customers of the Los Angeles Department of Water and Power (LADWP) and the Southern California Gas Company.

LADWP also offers a number of other incentive programs, including:

- Home Energy Improvement Program—
A free program for eligible customers that involves an energy assessment to identify cost-effective energy efficient upgrades and repairs that skilled repair technicians complete.
- California Friendly Landscape Incentive Program—
Provides \$2 per square foot for residential turf with efficient water use for landscaping.

ENERGY EFFICIENCY POTENTIAL: RESIDENTIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

CITY OF LOS ANGELES: ENERGY EFFICIENCY POTENTIAL: MULTI-UNIT RESIDENTIAL BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for multi-unit residential buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for the City of Los Angeles in the map statistics table.

91%
of apartments and other multi-unit residential buildings in the City of Los Angeles were built before the state's energy efficiency building codes.

The cheapest energy is the energy not used in the first place.

		Multi-unit Residential Buildings in the City of Los Angeles	All Buildings in the City of Los Angeles	
MAP STATISTICS	# of multi-unit residential buildings	95,847	# of total buildings in the City of Los Angeles	474,397
	% built before 1978	91%	% built before 1978	89%
	Average square footage of pre-1978 buildings	4,402	Average square footage of pre-1978 buildings	3,749
	% built in or after 1978	9%	% built in or after 1978	11%
	Average square footage of post-1978 buildings	8,805	Average square footage post-1978 buildings	7,937

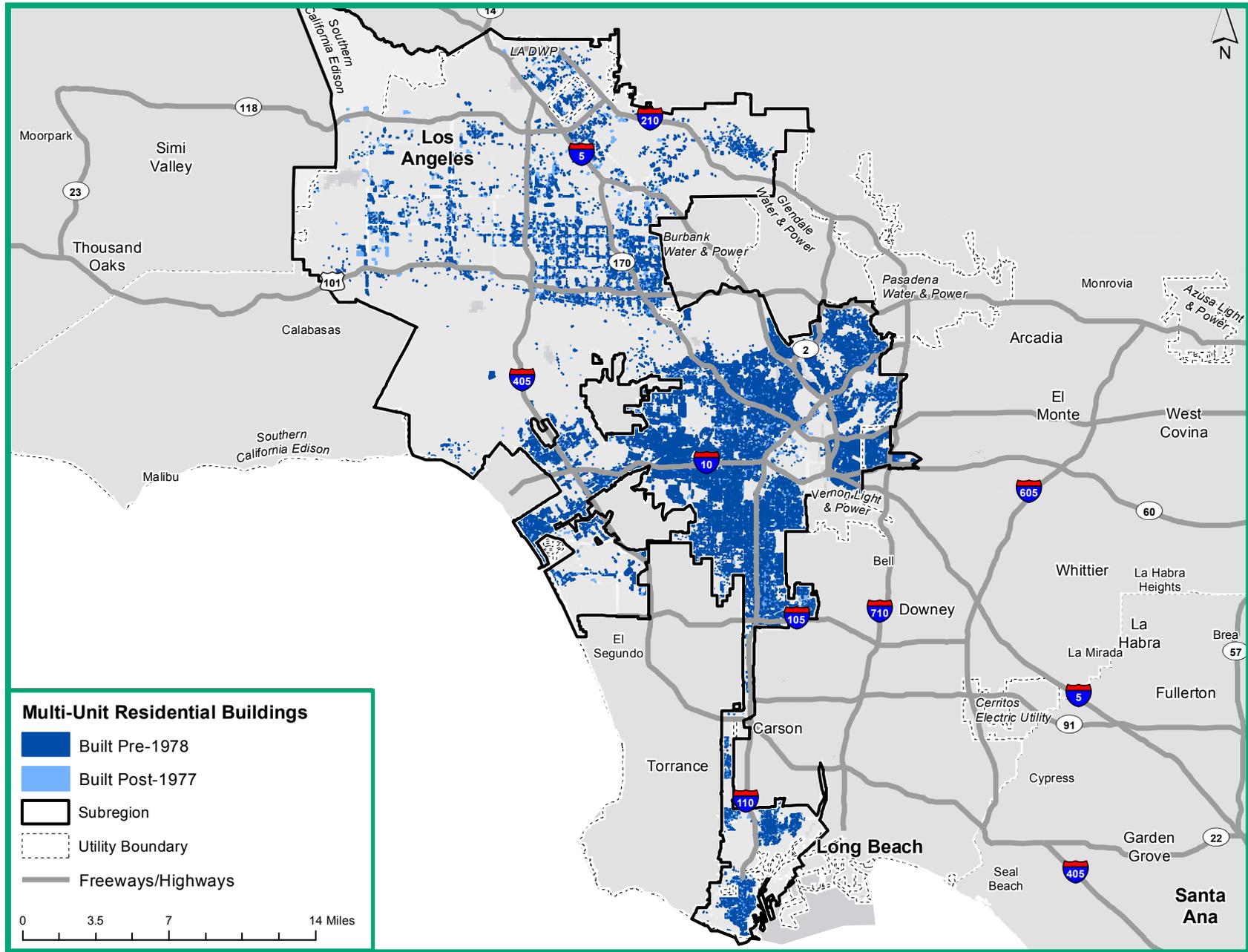
FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The City of Los Angeles could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would help consumers and property owners save money on their electricity bills, support local green jobs and reduce pollution.

Local policies also provide financial incentives for energy efficiency investments in multi-unit residential buildings. The previous narrative page describes energy efficiency incentive programs that the LADWP offers to residential customers. Two other relevant programs are:

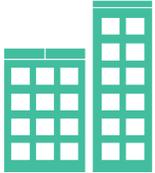
- Refrigerator Exchange Program— Provides the opportunity for participants of the LADWP Residential Low Income Discount Program and the Senior City/Disability Lifeline Rate to replace their old, inefficient refrigerators with a new energy saving model.
- Technical Assistance Program— Offers multi-unit residential property owners incentives for water saving equipment.

ENERGY EFFICIENCY POTENTIAL: MULTI-UNIT RESIDENTIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

CITY OF LOS ANGELES: ENERGY EFFICIENCY POTENTIAL: COMMERCIAL AND INDUSTRIAL BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for commercial and industrial buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for the City of Los Angeles in the statistics table, below.

30%
on average of
the energy used
in commercial
buildings is wasted,
according to the
U.S. Environmental
Protection Agency.

Retrofitting
buildings to be
energy efficient
saves money and
creates jobs.

MAP
STATISTICS

	Commercial and Industrial Buildings in the City of Los Angeles		All Buildings in the City of Los Angeles	
# of commercial and industrial buildings	38,844	# of total buildings in the City of LA	474,397	
% built before 1978	80%	% built before 1978	89%	
Average square footage of pre-1978 buildings	10,402	Average square footage of pre-1978 buildings	3,749	
% built in or after 1978	20%	% built in or after 1978	11%	
Average square footage of post-1978 buildings	18,636	Average square footage post-1978 buildings	7,937	

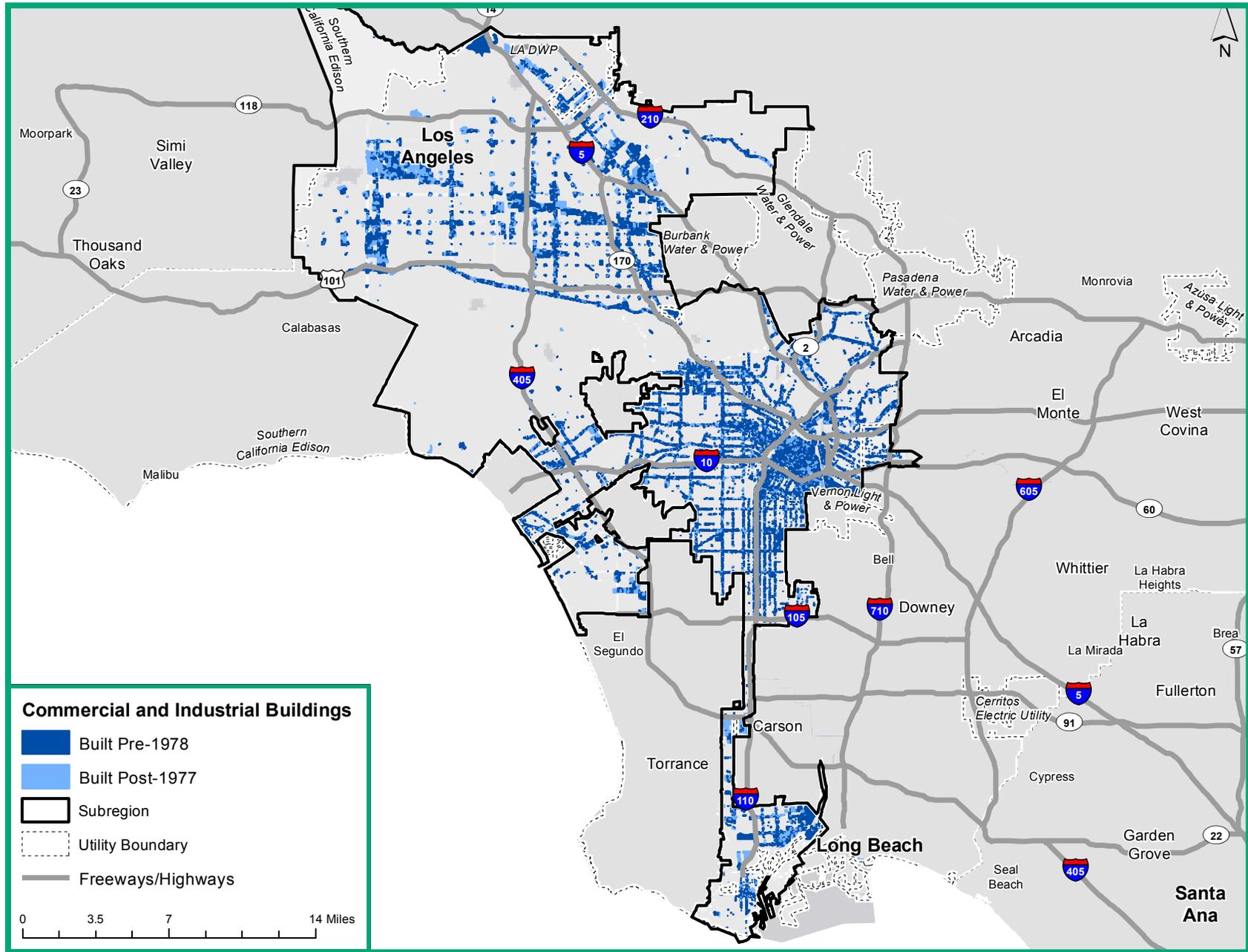
FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The City of Los Angeles could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would help businesses save money on their electricity bills, support local green jobs and reduce pollution.

Local policies also provide financial incentives for energy efficiency investments. The Los Angeles Department of Water and Power offers the following programs for industrial and commercial customers:

- Commercial Lighting Efficiency Offer Program
- Chiller Efficiency Program, Commercial Refrigeration Program
- Commercial Refrigeration Program
- Water Conservation Rebate Program

ENERGY EFFICIENCY POTENTIAL: COMMERCIAL AND INDUSTRIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

CITY OF LOS ANGELES: ENERGY EFFICIENCY POTENTIAL: GOVERNMENT AND NON-PROFIT BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for government and non-profit owned buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for the City of Los Angeles in the statistics table, below.

Billions
of \$
are on the table
for energy
efficiency and
clean energy
investments in
California.

		Government and Non-profit Buildings in the City of Los Angeles		All Buildings in the City of Los Angeles	
MAP STATISTICS	# of government and non-profit buildings	3,391	# of total buildings in the City of Los Angeles	474,397	
	% built before 1978	87%	% built before 1978	89%	
	Average square footage of pre-1978 buildings	16,235	Average square footage of pre-1978 buildings	3,749	
	% built in or after 1978	13%	% built in or after 1978	11%	
	Average square footage of post-1978 buildings	27,325	Average square footage post-1978 buildings	7,937	

FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The City of Los Angeles could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would save taxpayer money by reducing energy costs in municipal buildings while supporting local green jobs and reducing pollution.

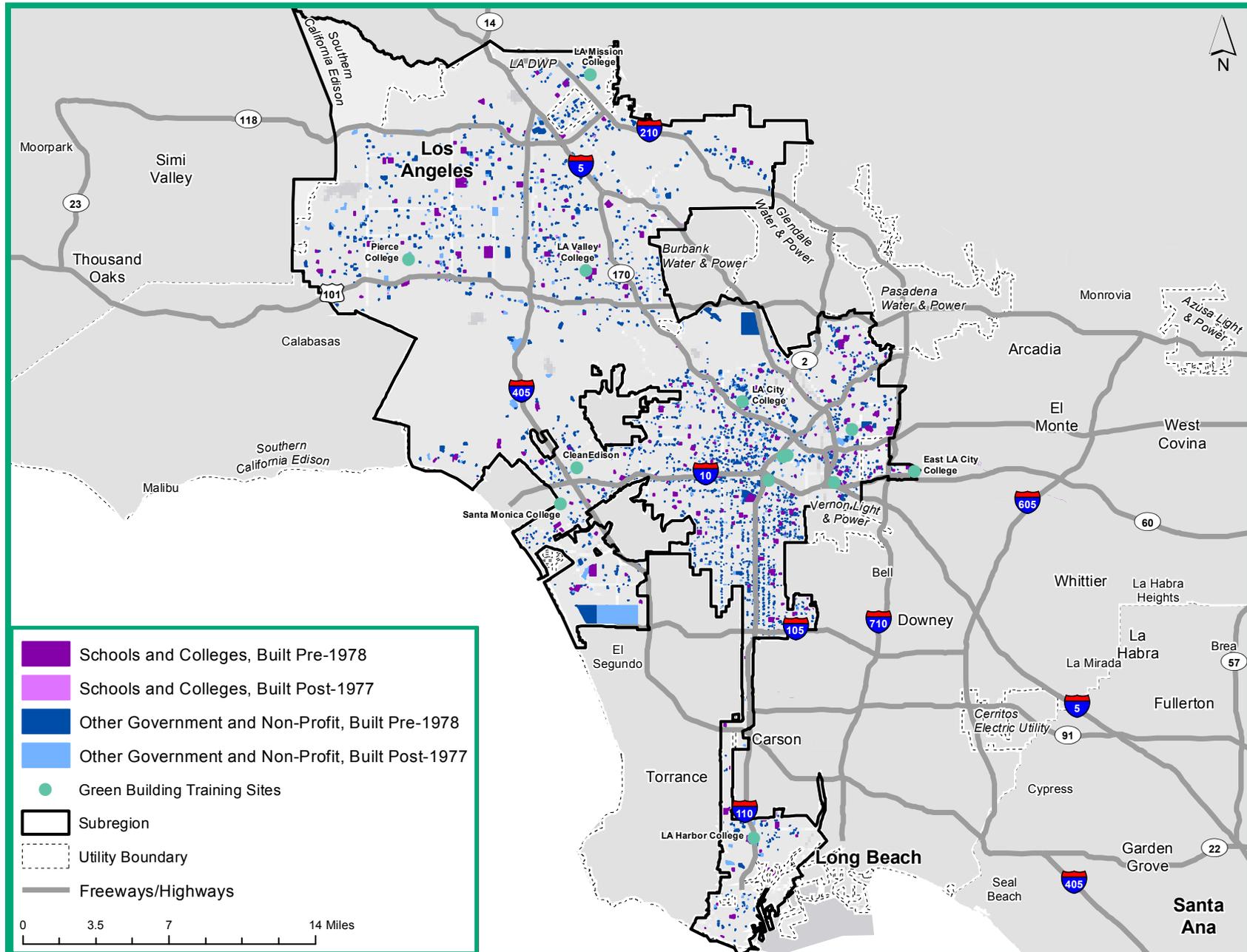
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Green job training sites will also be supported by Proposition 39 funds. The map identifies green buildings training sites that could be eligible for these funds.



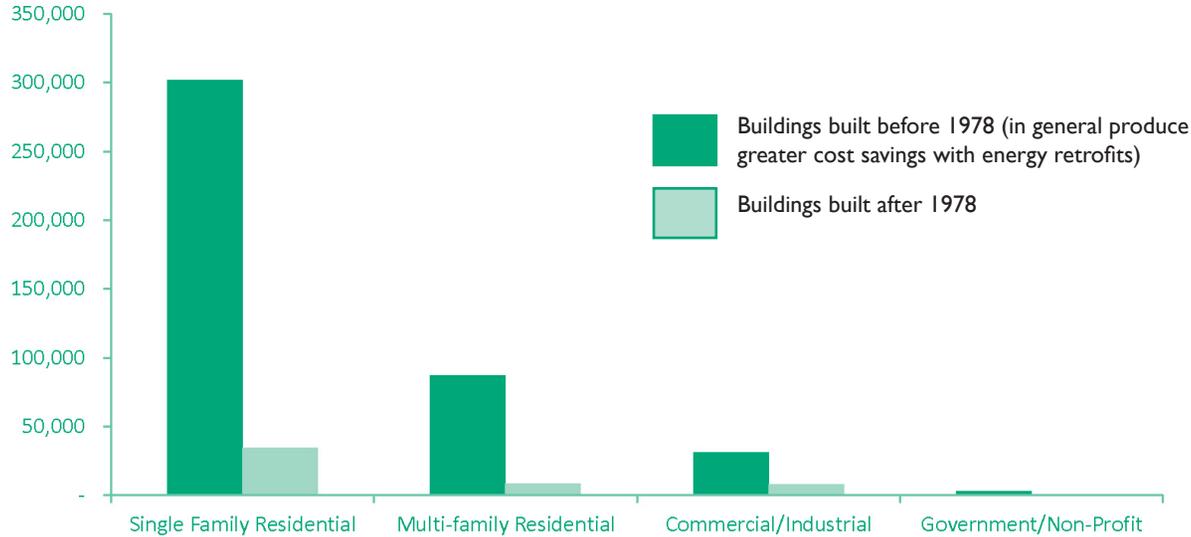
ENERGY EFFICIENCY POTENTIAL: GOVERNMENT AND NON-PROFIT



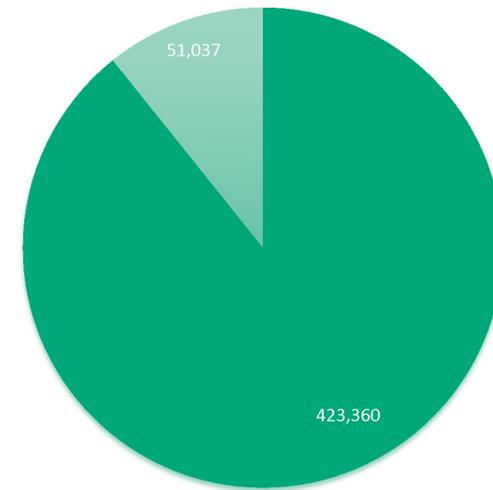
Source: Building age data: Los Angeles County Assessor; Schools: Extracted from Points of Interest (LMS Data) from LA County GIS Portal; Green building training site data: USC Program for Environmental and Regional Equity. Original data from Environment California Research and Policy Center, 2011. "Building a Clean Energy Workforce: Preparing Californians for New Opportunities in the State's Green Economy."

CITY OF LOS ANGELES: ENERGY EFFICIENCY POTENTIAL SUMMARY

NUMBER OF BUILDINGS BY SECTOR



ALL BUILDINGS IN CITY OF LA

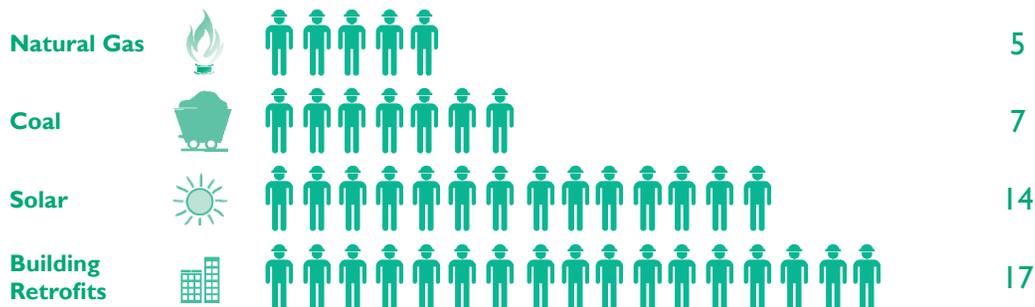


LINKING INVESTMENTS IN WORKFORCE TRAINING TO SUSTAINABLE JOBS

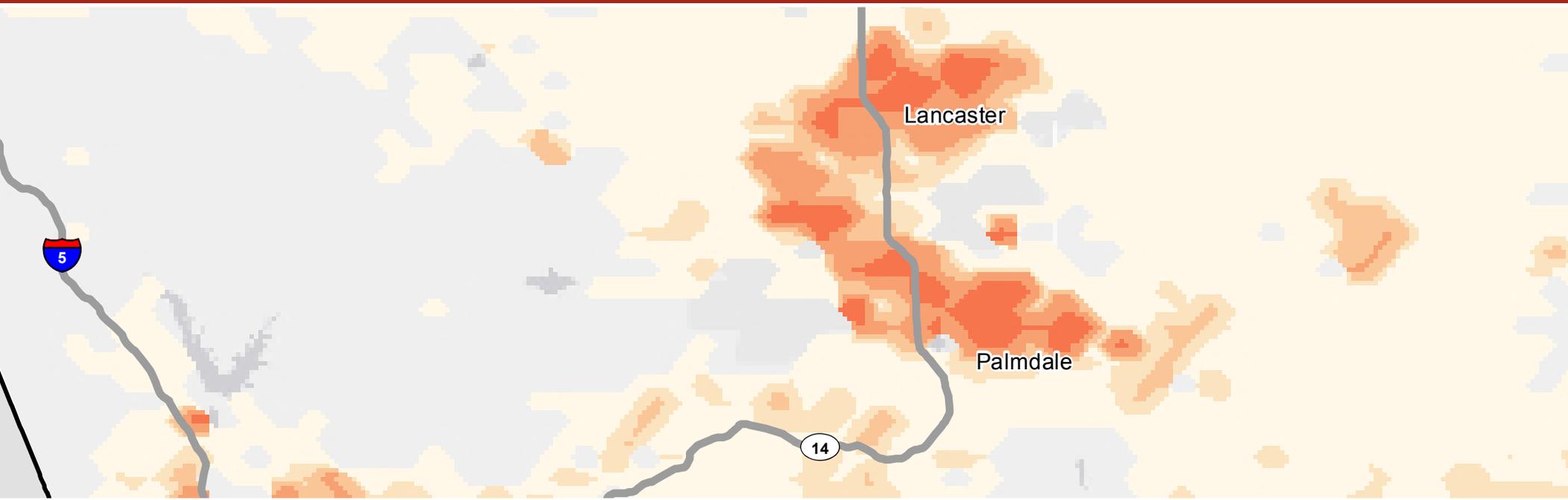
“Sustainable jobs” pay prevailing wages and provide healthcare and access to opportunities for wage growth.²³ To effectively link Proposition 39’s funding for worker training with sustainable jobs, policymakers should consider best practices for a strong pipeline between training programs and careers. For example, the Los Angeles Community College District, the Los Angeles Unified School District, and the City of Los Angeles have approved project labor/stabilization agreements, or contracts with labor unions, that include goals for local hires and apprentices workers. Apprenticeship programs can create a strong pipeline between education and sustainable jobs and careers.

THE TRUTH ABOUT JOB CREATION

Energy efficiency investments create costs savings for the customer and jobs for the region. Invest \$1 million in the following industries, you get this many jobs.²⁴



PROFILE OF CLEAN ENERGY INVESTMENT POTENTIAL NORTH LOS ANGELES COUNTY



NORTH LOS ANGELES COUNTY: VULNERABILITY TO CLIMATE CHANGE



The map can inform spatially-targeted strategies to reduce health risks from climate change.

Knowing what communities are vulnerable to climate change, as identified in the map and table below, enables policymakers to identify strategies to reduce risk and improve community resiliency. Climate change will increase health issues in many communities.

This map illustrates the extent of vulnerability to climate change in the communities (at the census tract level) of the North Los Angeles County. The data comes from the California Environmental Health Tracking Program (CEHTP) of the California Department of Public Health, which created an index of 7 indicators.¹³ These indicators, of climate change impacts and a community's adaptive capacity, included:

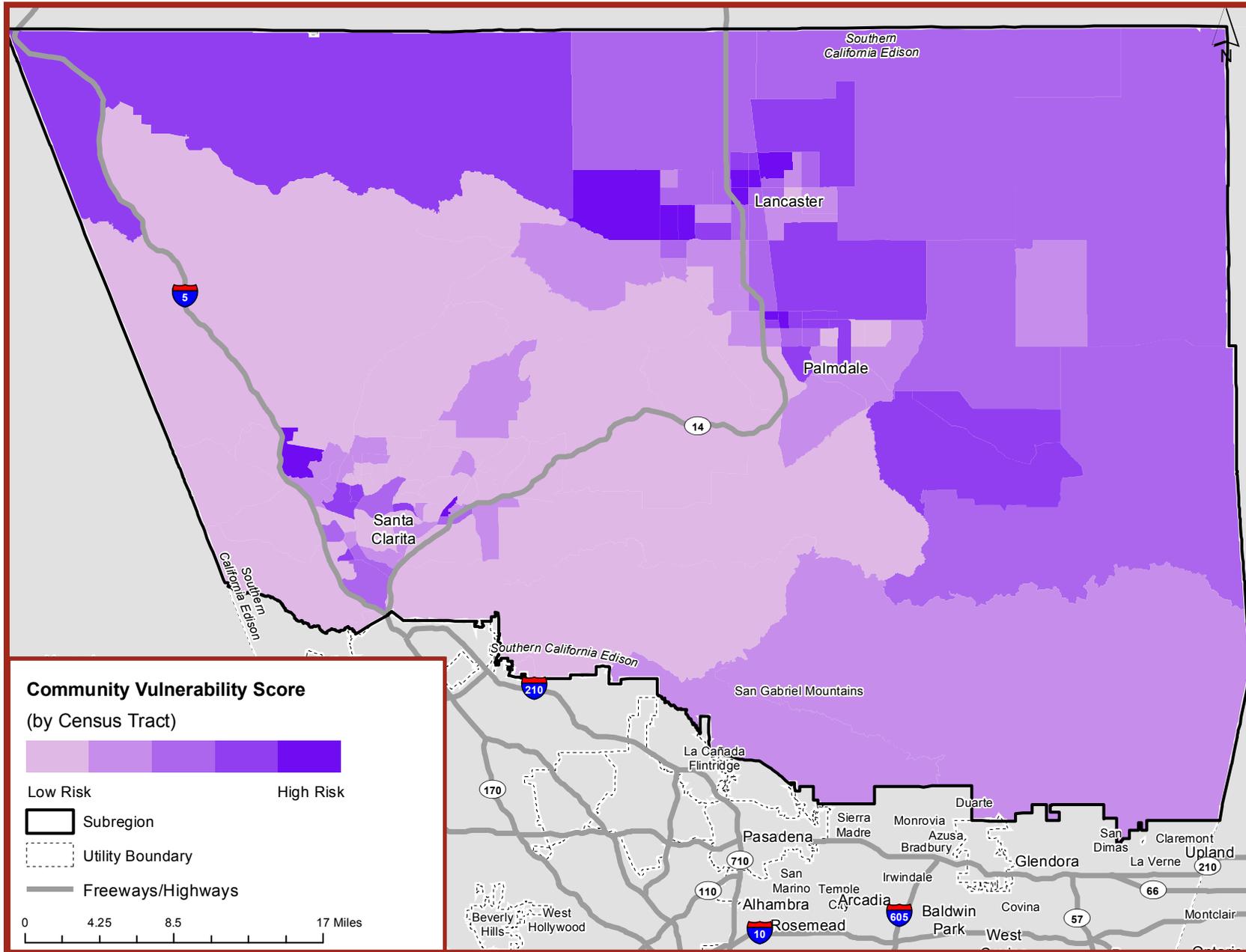
- Air conditioning (AC) ownership;
- Land cover characteristics (tree canopy and impervious surfaces);
- Access to transportation (transit and household car access);
- Social vulnerabilities (elderly living alone);
- Flood risk;
- Wildfire risk; and
- Sea level rise.

Note that the index does not include temperature predication data under climate change. Temperature predictions under climate change are shown in the Mid-Mentury Warming in the LA Region map.

Community Vulnerability to Climate Change in the North Los Angeles County			
Zip code(s) for which the census tract (in parentheses) falls within		Level*	Scores (on a scale of 1-3.788 with 3.788 being the most vulnerable)
93550	(06037910501)	Top tier	3.556
91355, 91384 and 91354	(06037920200)	Top tier	3.200
91355, 91384 and 91354	(06037920200)	Top tier	3.200
91355, 91384 and 91354	(06037920200)	Top tier	3.200
93536 and 93551	(06037901205)	Top tier	3.125
93536 and 93551	(06037901205)	Top tier	3.125
91387 and 91531	(06037920038)	Top tier	3.000
91387 and 91531	(06037920038)	Top tier	3.000
93534	(06037900806)	Top tier	3.000
93534	(06037900805)	Top tier	3.000

*Relative to other census tracts in California

VULNERABILITY TO CLIMATE CHANGE



Source: California Environmental Health Tracking Program, August 2011. "Community Vulnerabilities to Climate Change." Environmental Health Investigations Branch, California Department of Public Health. Final report available at www.cehtp.org/p/climate_population_vulnerabilities.



The map will inform the investment plan for the Greenhouse Gas Reduction Fund.

NORTH LOS ANGELES COUNTY: ENVIRONMENTAL HEALTH RISK

This map illustrates the screening tool that the State of California developed to identify communities disproportionately burdened by and vulnerable to multiple sources of pollution. Called the California Communities Environmental Health Screening Tool 2.0 (CalEnviroTool 2.0), it generates environmental health risk scores and rankings for every census tract in the state, incorporating data from 19 indicators within two categories: 1) pollution burden, exposure and environmental effect indicators; and 2) population characteristics, sensitive populations and socioeconomic factor indicators.¹⁴ High rankings indicate relatively high vulnerability.

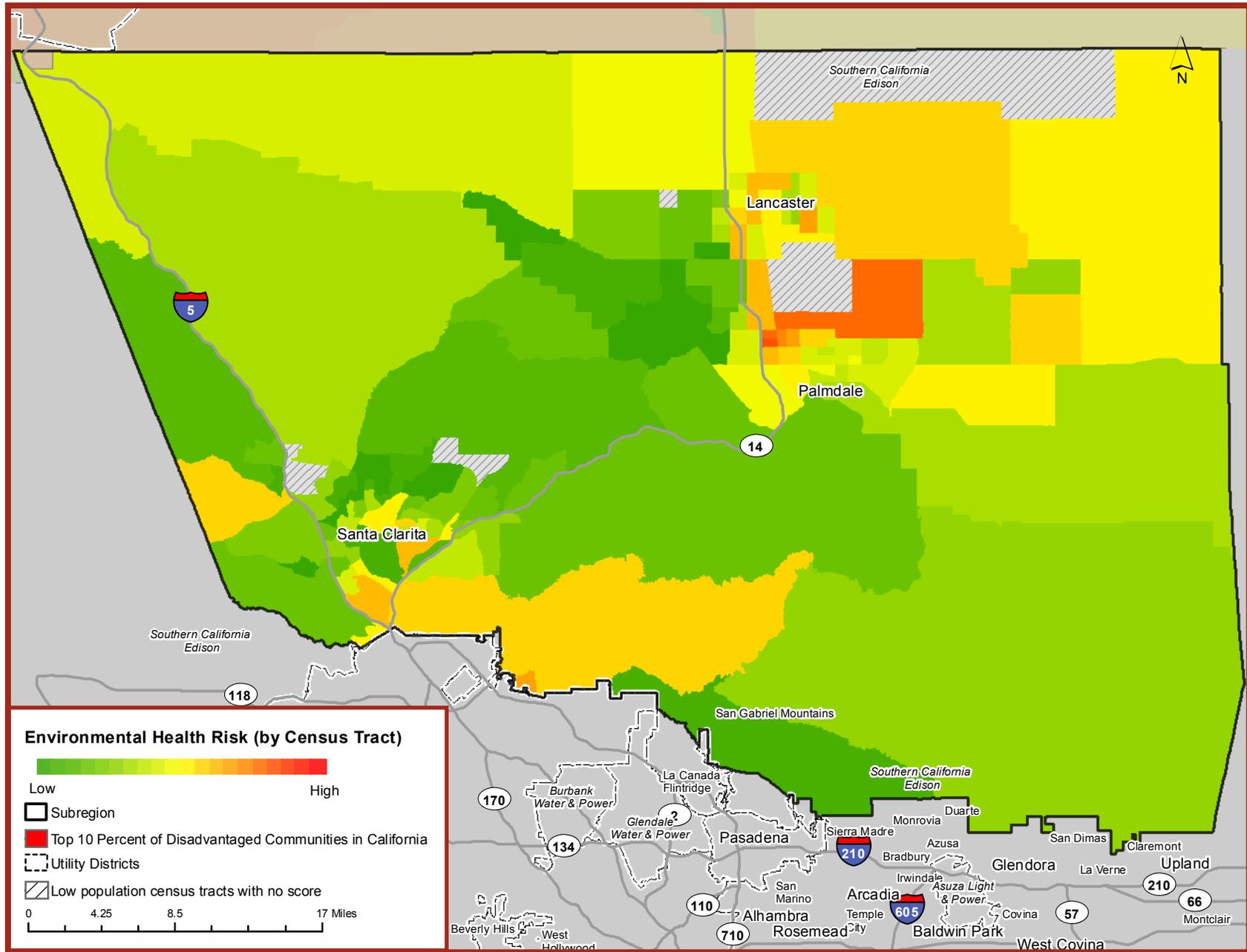
CalEnviroScreen will inform the State's identification of disadvantaged communities pursuant to **Senate Bill 535** (SB 535). SB 535 requires that at least 25 percent of monies from the **Greenhouse Gas Reduction Fund** be directed to projects that benefit disadvantaged communities and at least 10 percent of program funding expended will be directed to projects located in disadvantaged communities. With revenue from the State's cap-and-trade program, the Greenhouse Gas Reduction Fund is expected to soon generate billions of dollars every year for projects that reduce greenhouse gas emissions, create jobs and other co-benefits.

It is expected that communities with environmental risk scores in the top 20 percent will be prioritized for funding under the Greenhouse Gas Reduction Fund. To be conservative, however, the following map outlines with light grey lines communities with environmental risks scores in the top 10 percent. This map and others in the series, can help decision-makers and community members think strategically about where and what to invest in, to reduce pollution, expand clean energy generation, and create jobs.

Results from the California Communities Environmental Health Screening Tool: Highest Scores for North Los Angeles County				
Zip code(s) for which the census tract (in parentheses) falls within		Tier*	Percentile rank*	Score
93550	(6037910403)	4th Tier	81-85%	32.17
93550 and 93552	(6037910101)	5th Tier	76-80%	30.21
93550 and 93551	(6037910402)	5th Tier	76-80%	29.96
93550	(6037910501)	6th Tier	71-75%	28.56
91342	(6037104124)	7th Tier	66-70%	25.30
93535	(6037900507)	7th Tier	66-70%	25.12
93550	(6037910502)	7th Tier	66-70%	25.11
91321	(6037920312)	8th Tier	61-65%	24.18
93534 and 93535	(6037900602)	8th Tier	61-65%	24.04
93534	(6037900806)	8th Tier	61-65%	23.95

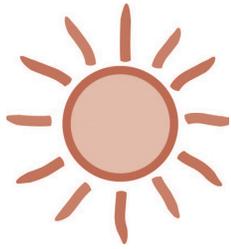
*Compared to other census tracts in California

ENVIRONMENTAL HEALTH RISK



Source: California Environmental Protection Agency and the Office of Environmental Health Hazard Assessment, "California Communities Environmental Health Screening Tool Version 2.0" (2014). <http://oehha.ca.gov/ej/ces2.html>. For the purpose of this report, the highest scoring census tracts are identified as disadvantaged communities and are delineated with a grey border and red color.

NORTH LOS ANGELES COUNTY: SOLAR CAPACITY



North Los Angeles County is endowed with both bountiful sunshine and numerous buildings that offer valuable siting opportunities for solar energy generation. This map identifies the rooftop solar opportunities across neighborhoods in the North Los Angeles County.¹⁶ Economic development planners, building owners and anyone interested in expanding solar power can use this map, along other parcel level analyses,¹⁷ to identify potential investment opportunities.¹⁸ Because cost-effectiveness increases with the size of a solar installation, the map statistics table presents the number of potential solar projects by size and the total rooftop potential.

2,555
job years could be created if 5% of rooftop solar potential in North Los Angeles County was realized.¹⁹

MAP STATISTICS	Single Family	94%	Total Rooftop Solar Potential	2,044 megawatts
	Multi-unit Residential	2%	Total Potential Sites	136,554 rooftops
	Commercial & Industrial	3%	Median Rooftop Availability	950 sq. ft.
	Government & Non-profit	<1%	Median Potential of Available Parcels	9.1 kilowatts

Jobs: If just 5% of total rooftop solar potential in the North Los Angeles County was realized, approximately 2,555 job years would be created.¹⁹ **Pollution Reduction:** This would also eliminate 109,010 metric tons of carbon dioxide pollution each year.²⁰

FUNDING OPPORTUNITIES

State policies that expand opportunities for solar include the potentially billions of dollars from Proposition 39's Clean Energy Job Creation Fund as well as the AB 32 Greenhouse Gas Reduction Fund (cap-and-trade auction proceeds). In order for the North Los Angeles County to benefit, policymakers will have to be vigilant to ensure that residents, businesses and schools have access to these opportunities.

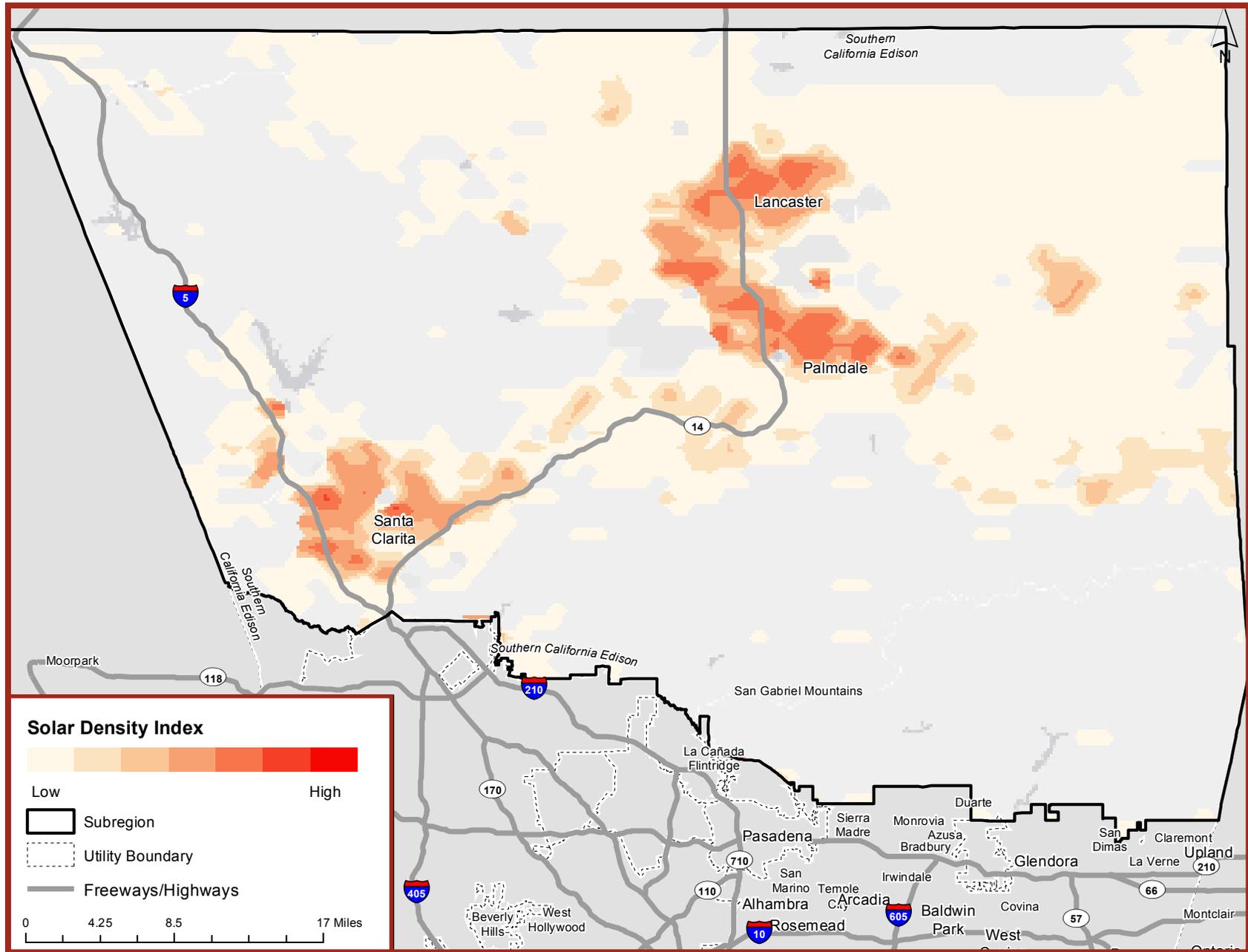
Job training will also be supported by Proposition 39. The map identifies solar job training sites that could be eligible for these resources.

Local policies also provide financial incentives for solar investments. Through the California Solar Initiative, Southern California Edison offers incentives including rebates on solar equipment and installation of photovoltaics and solar heating systems. Residential and commercial customers could also be eligible for Net Energy Metering, which gives property owners credit for the electricity generated by the solar system on their rooftop.



Parcels with the Largest Potential Solar Projects in the North Los Angeles County				
Rank	Potential (kW)	Parcel Address	Zip Code	Parcel Use Description
1	7,097	2825 E Avenue P; Unincorporated	93550	Heavy Manufacturing
2	4,954	1301 E Avenue I; Lancaster	93535	Mobile Home Parks
3	4,547	3501 W Avenue H; Lancaster	93536	Warehousing, Distribution, Storage
4	4,173	25655 Springbrook Ave; Santa Clarita	91350	Heavy Manufacturing
5	4,071	40701 Rancho Vista Blvd; Palmdale	93551	Mobile Home Parks

SOLAR CAPACITY



Source: Original solar capacity data: Los Angeles County, "Los Angeles County Solar Map." solarmap.lacounty.gov. Data modified by UCLA for the "Los Angeles County Solar Atlas," 2011, from which the above map was created. innovation.luskin.ucla.edu. Solar training sites data: USC Program for Environmental and Regional Equity, 2011. "Empowering LA's Solar Workforce." Sponsored by the Los Angeles Business Council. Original data from Environment California Research and Policy Center, 2011. "Building a Clean Energy Workforce: Preparing Californians for New Opportunities in the State's Green Economy."

NORTH LOS ANGELES COUNTY: ENERGY EFFICIENCY POTENTIAL: RESIDENTIAL BUILDINGS/HOMES



27% of homes in North Los Angeles County were built before the state's energy efficiency building codes.

Simple retrofits can save money and make the home more comfortable year round.

The map highlights neighborhoods where potential for energy efficiency investments might be greatest for residential homes.²¹ Buildings constructed before 1978 in general produce greater cost savings when retrofitted than buildings built after 1978.²² The potential for energy efficiency investments is summarized for the North Los Angeles County in the map statistics table.

		Residential Buildings in the North LA County		All Buildings in the North LA County	
MAP STATISTICS		# of single-family homes	128,877	# of total buildings	135,062
		% built before 1978	27%	% built before 1978	28%
		Average square footage of pre-1978 buildings	3,112	Average square footage of pre-1978 buildings	3,672
		% built in or after 1978	73%	% built in or after 1978	72%
		Average square footage of post-1978 buildings	3,080	Average square footage post-1978 buildings	3,777

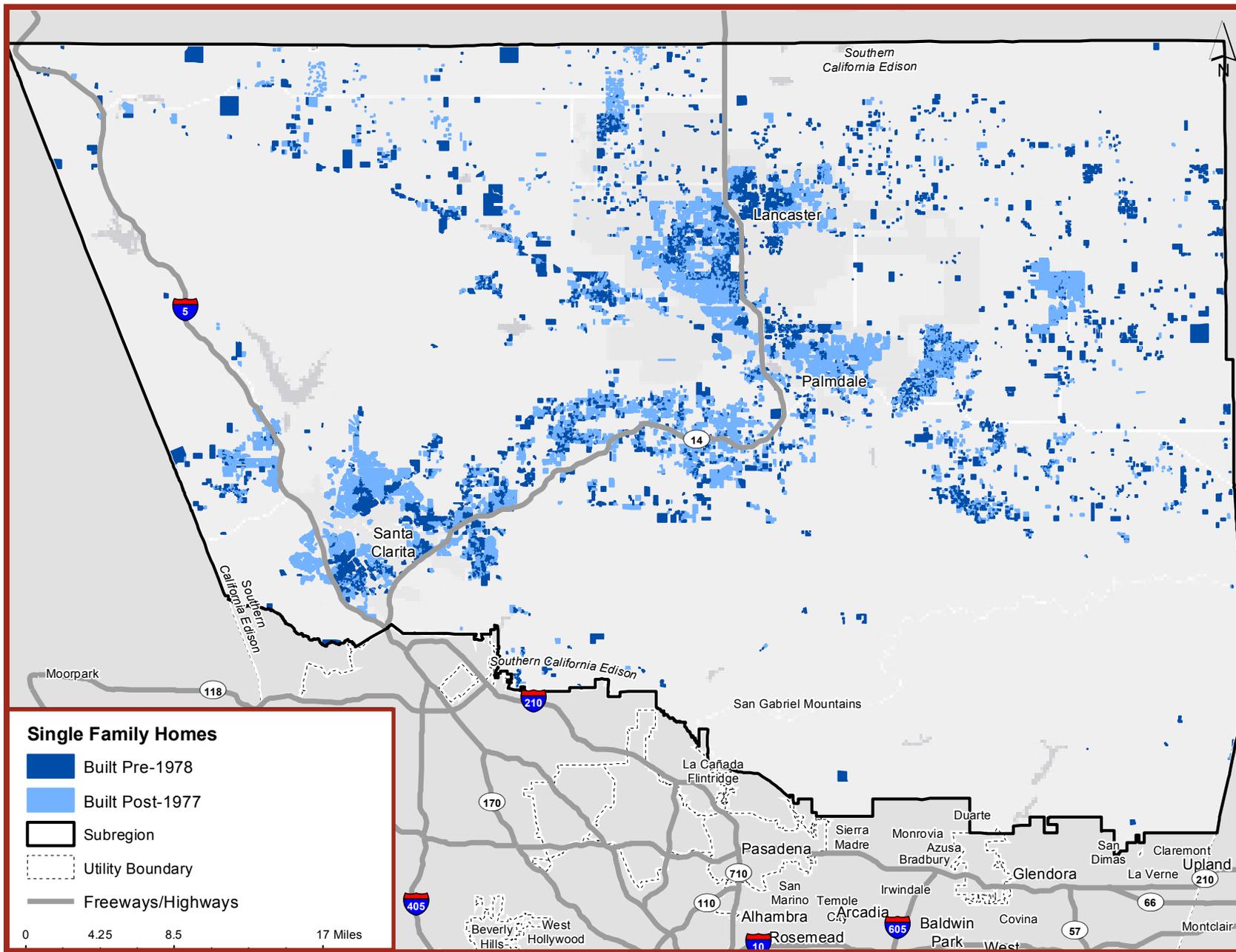
FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The North Los Angeles County could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would help consumers save money on their electricity bills, support local green jobs and reduce pollution.

Local policies provide financial incentives to homeowners for energy efficiency investments. Through Energy Upgrade California™, incentives of up to \$4,500 are available to residential customers of Southern California Edison (SCE) and the Southern California Gas Company (SoCal Gas). Other programs include:

- Residential Energy Efficiency Rebate Program—
SCE provides residential incentives for a wide range of energy efficiency upgrades, including up to \$1,100 to help with A/C installation, maintenance and repair as well as refrigerator recycling, ENERGY STAR refrigerator rebates, pool pump and motor rebates, the More Light for Less program, whole house fan rebates, evaporative cooler rebates, water heater rebates and clothes washer rebates.
- Home Energy Efficiency Rebate Program—
SoCal Gas provides rebates to residential customers for energy efficiency upgrades with ENERGY STAR equipment.
- California Advanced Homes Incentives—
Incentives for home construction that performs at least 15% better than Title 24 Standards.

ENERGY EFFICIENCY POTENTIAL: RESIDENTIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

NORTH LOS ANGELES COUNTY: ENERGY EFFICIENCY POTENTIAL: MULTI-UNIT RESIDENTIAL BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for multi-unit residential buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for North Los Angeles County in the map statistics table.

63% of apartments and other multi-unit residential buildings in North Los Angeles County were built before the state's energy efficiency building codes.

The cheapest energy is the energy not used in the first place.

MAP STATISTICS	Multi-unit Residential Buildings in North LA County		All Buildings in North Los Angeles County	
	# of multi-unit residential buildings	2,232	# of total buildings	135,062
% built before 1978	63%	% built before 1978	28%	
Average square footage of pre-1978 buildings	6,767	Average square footage of pre-1978 buildings	3,672	
% built in or after 1978	37%	% built in or after 1978	72%	
Average square footage of post-1978 buildings	25,524	Average square footage post-1978 buildings	3,777	

FUNDING OPPORTUNITIES

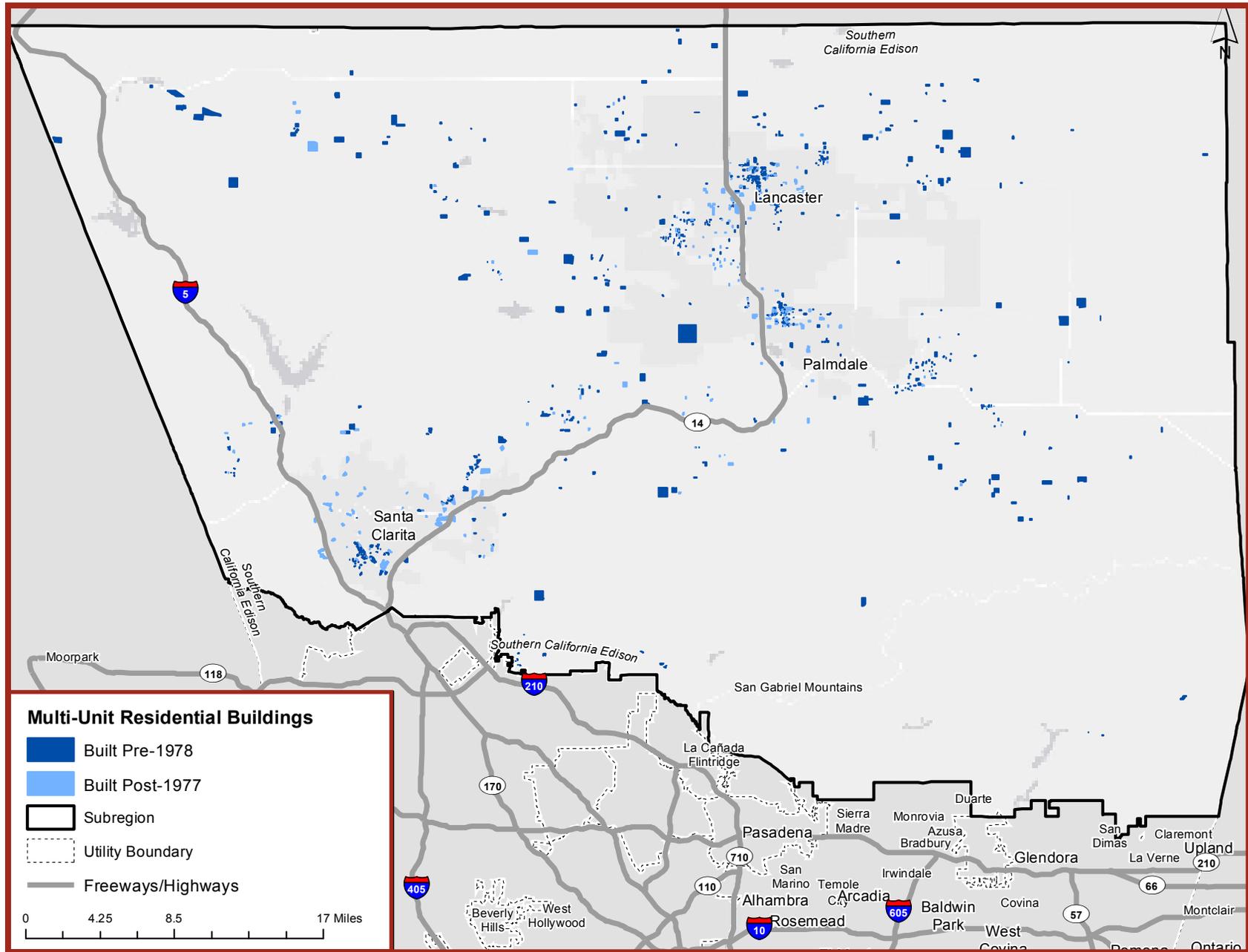
State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The North Los Angeles County could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would help consumers and property owners save money on their electricity bills, support local green jobs and reduce pollution.

Local policies also provide financial incentives for energy efficiency investments in multi-unit residential buildings. The previous narrative page describes residential incentive programs offered by Southern California Edison (SCE) and the Southern California Gas Company (SoCal Gas).

In addition, SCE offers a multi-family residential energy program that provides rebates for energy efficiency upgrades to property managers and owners of multi-unit residences.

SoCal Gas also offers a multi-family residential energy program that provides rebates for energy efficiency upgrades to property managers and owners of multi-unit residences.

ENERGY EFFICIENCY POTENTIAL: MULTI-UNIT RESIDENTIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

NORTH LOS ANGELES COUNTY: ENERGY EFFICIENCY POTENTIAL: COMMERCIAL AND INDUSTRIAL BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for commercial and industrial buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for North Los Angeles County in the statistics table, below.

30%
on average of
the energy used
in commercial
buildings is wasted,
according to the
U.S. Environmental
Protection Agency.

**Retrofitting
buildings to be
energy efficient
saves money and
creates jobs.**

**MAP
STATISTICS**

Commercial and Industrial Buildings in North LA County

All Buildings in North Los Angeles County

# of commercial and industrial buildings	3,594	# of total buildings	135,062
% built before 1978	42%	% built before 1978	28%
Average square footage of pre-1978 buildings	11,307	Average square footage of pre-1978 buildings	3,672
% built in or after 1978	58%	% built in or after 1978	72%
Average square footage of post-1978 buildings	25,844	Average square footage post-1978 buildings	3,777

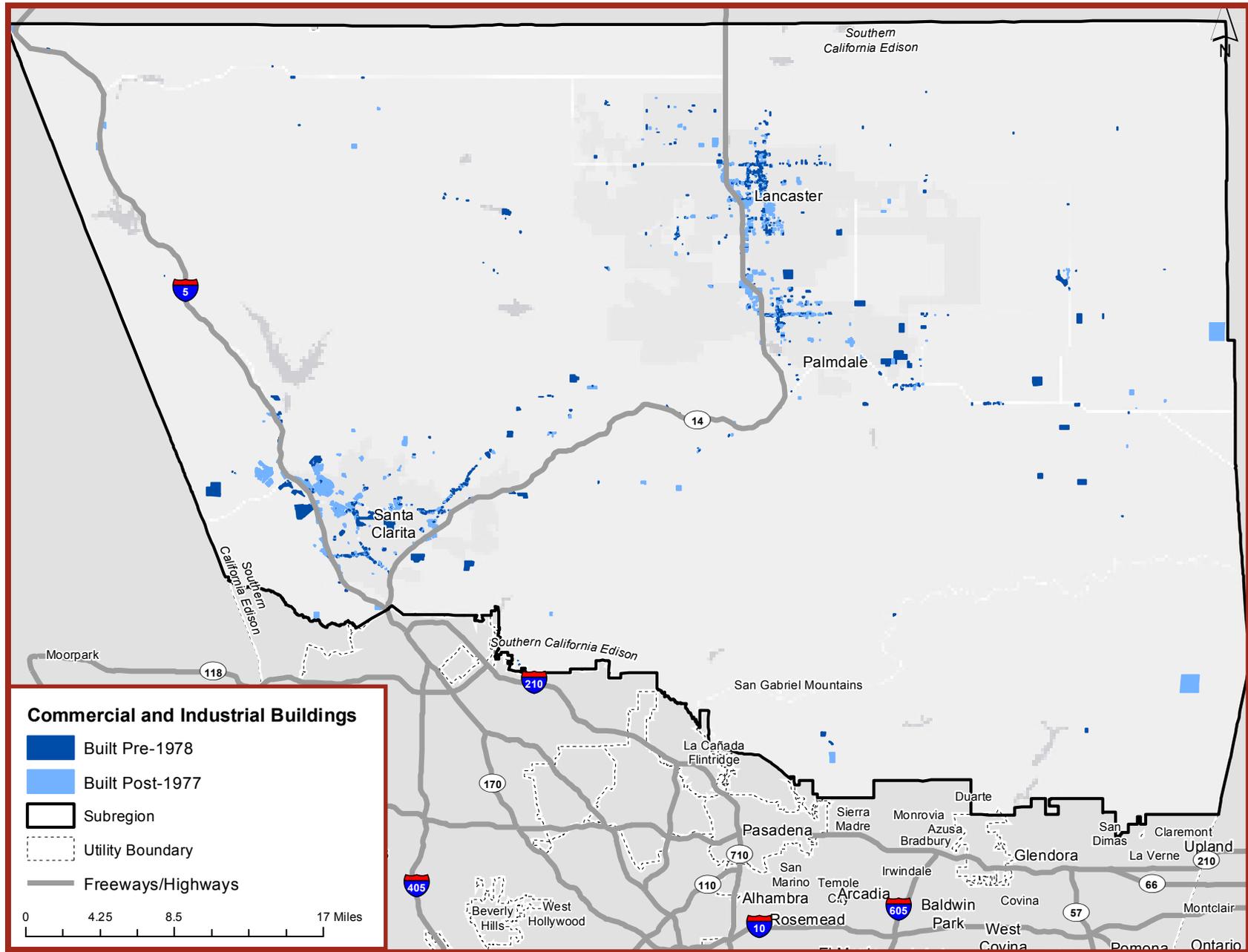
FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. North Los Angeles County could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would help businesses save money on their electricity bills, support local green jobs and reduce pollution.

Local policies also provide financial incentives for energy efficiency investments. Southern California Edison (SCE) offers a range of programs for industrial and commercial customers, including:

- Demand Response Program—
Helps commercial customers save money by reducing energy use during peak demand times.
- Energy Efficiency Express Solutions—
Provides rebates paid up to 100% on energy upgrades for lighting, temperature control, refrigerators and water heaters.
- Savings by Design Program—
SCE partners with the Southern California Gas Company (SoCal Gas) on the Savings by Design program that provides technical expertise and rebates to commercial and industrial customers to reduce energy usage.
- Other SCE and SoCal Gas services include energy efficiency customized solutions, an energy efficiency calculated incentive program, and a non-residential on-bill financing program.

ENERGY EFFICIENCY POTENTIAL: COMMERCIAL AND INDUSTRIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

NORTH LOS ANGELES COUNTY: ENERGY EFFICIENCY POTENTIAL: GOVERNMENT AND NON-PROFIT BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for government and non-profit owned buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for North Los Angeles County in the statistics table, below.

Billions

of \$
are on the table
for energy
efficiency and
clean energy
investments in
California.

		Government and Non-profit Buildings in North LA County	All Buildings in North LA County	
MAP STATISTICS	# of government and non-profit buildings	359	# of total buildings in the North Los Angeles County	135,062
	% built before 1978	67%	% built before 1978	28%
	Average square footage of pre-1978 buildings	17,647	Average square footage of pre-1978 buildings	3,672
	% built in or after 1978	33%	% built in or after 1978	72%
	Average square footage of post-1978 buildings	19,806	Average square footage post-1978 buildings	3,777

FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The North Los Angeles County could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would save taxpayers' money while supporting local green jobs and reducing pollution.

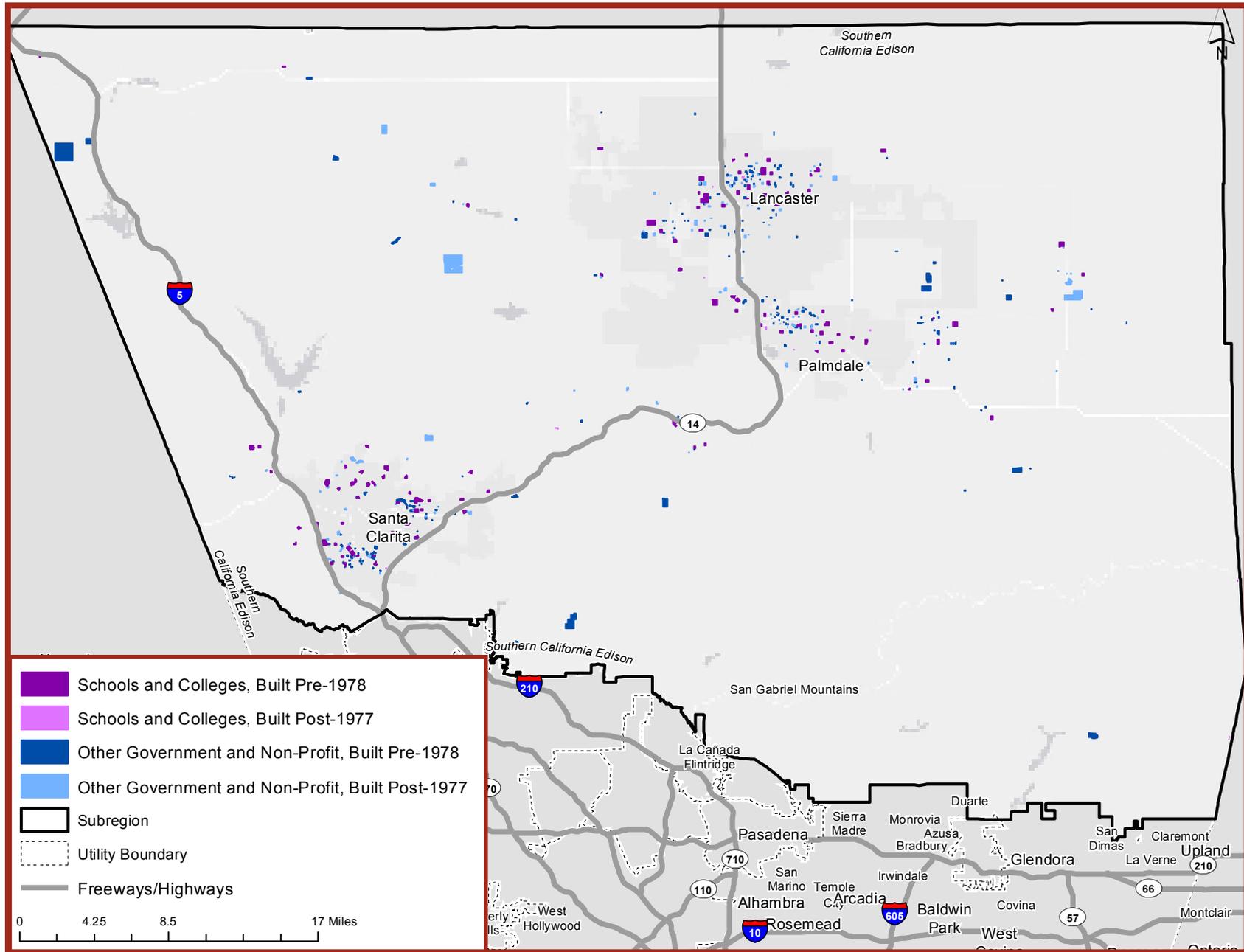
Municipal buildings will be eligible recipients for Proposition 39 funds. The map identifies the municipal buildings constructed before 1978, an indication of likely cost effectiveness for a retrofit.

Schools are pulled out because schools will be prime recipients of Proposition 39 funds. As the map indicates, numerous schools were constructed pre-1978, before energy efficiency building codes were in effect.

Green job training sites will also be supported by Proposition 39 funds. The map identifies green buildings training sites that could be eligible for these funds.



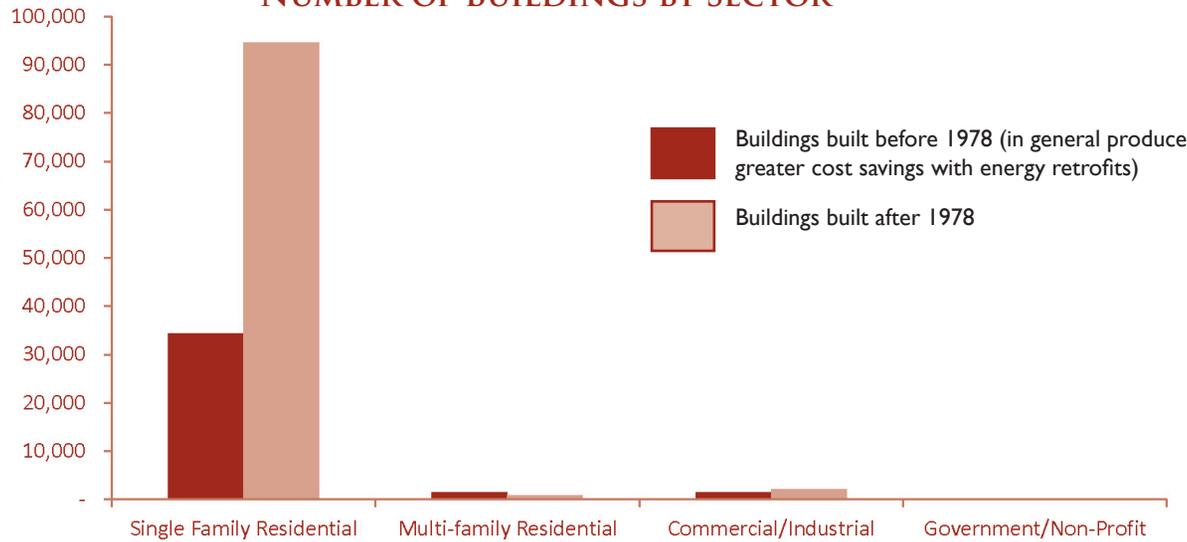
ENERGY EFFICIENCY POTENTIAL: GOVERNMENT AND NON-PROFIT



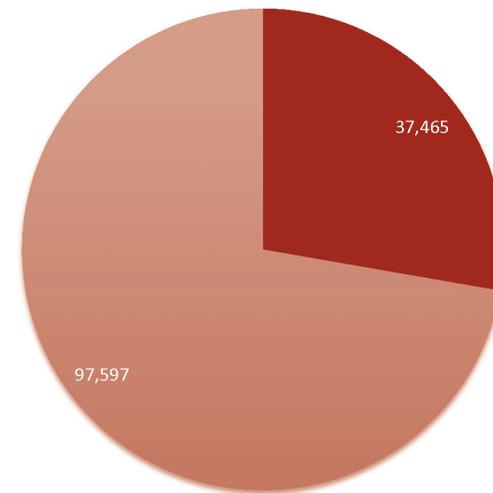
Source: Building age data: Los Angeles County Assessor; Schools: Extracted from Points of Interest (LMS Data) from LA County GIS Portal; Green building training site data: USC Program for Environmental and Regional Equity. Original data from Environment California Research and Policy Center, 2011. "Building a Clean Energy Workforce: Preparing Californians for New Opportunities in the State's Green Economy."

NORTH LA COUNTY: ENERGY EFFICIENCY POTENTIAL SUMMARY

NUMBER OF BUILDINGS BY SECTOR



ALL BUILDINGS IN NORTH LOS ANGELES COUNTY

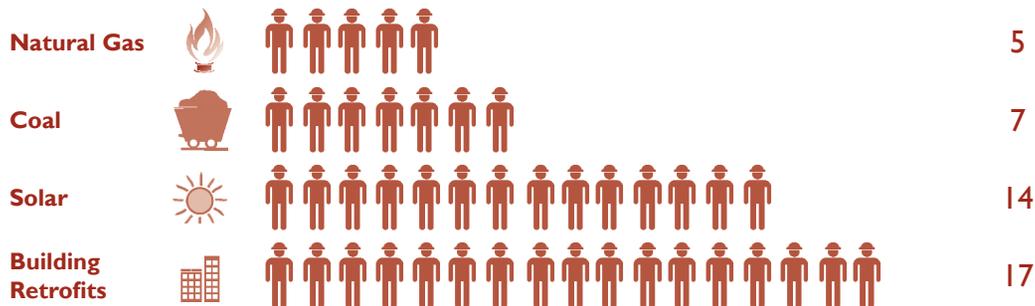


LINKING INVESTMENTS IN WORKFORCE TRAINING TO SUSTAINABLE JOBS

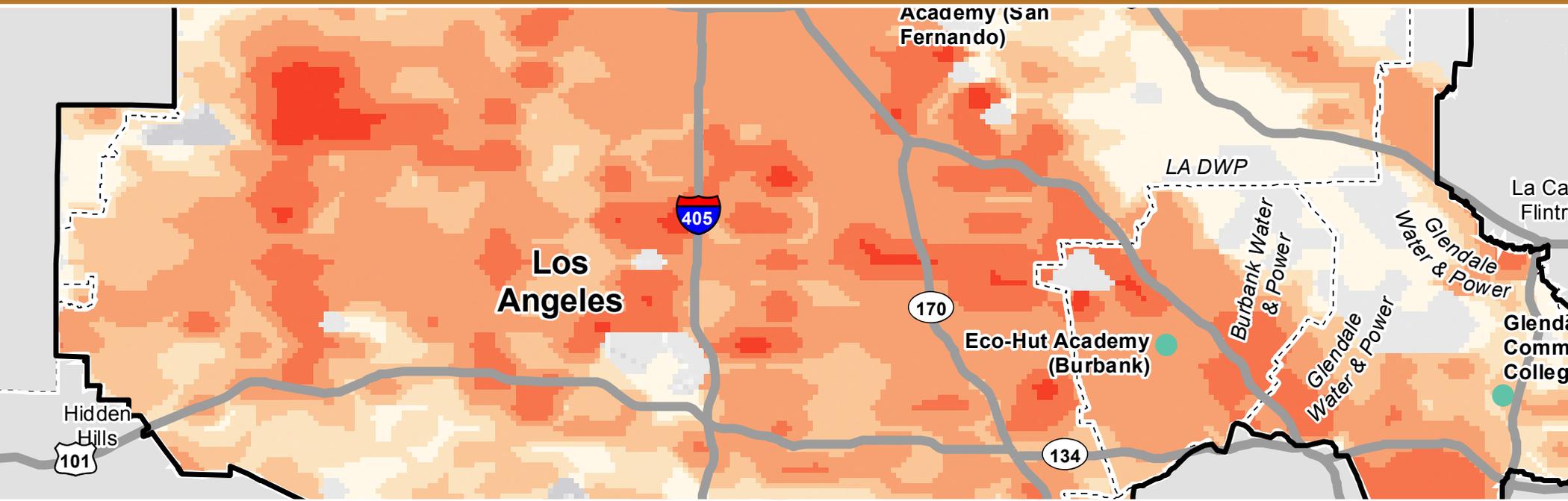
“Sustainable jobs” pay prevailing wages and provide healthcare and access to opportunities for wage growth.²³ To effectively link Proposition 39’s funding for worker training with sustainable jobs, policymakers should consider best practices for a strong pipeline between training programs and careers. For example the Los Angeles Community College District and the City of Los Angeles have approved project labor/stabilization agreements, or contracts with labor unions, that include goals for local hires and apprentices workers. Apprenticeship programs can create a strong pipeline between education and sustainable jobs and careers.

THE TRUTH ABOUT JOB CREATION

Energy efficiency investments create costs savings for the customer and jobs for the region. Invest \$1 million in the following industries, you get this many jobs.²⁴



PROFILE OF CLEAN ENERGY INVESTMENT POTENTIAL SAN FERNANDO VALLEY



SAN FERNANDO VALLEY: VULNERABILITY TO CLIMATE CHANGE



The map can inform spatially-targeted strategies to reduce health risks from climate change.

Knowing what communities are vulnerable to climate change, as identified in the map and table below, enables policymakers to identify strategies to reduce risk and improve community resiliency. Climate change will increase health issues in many communities.

This map illustrates the extent of vulnerability to climate change in the communities (at the census tract level) of the San Fernando Valley. The data comes from the California Environmental Health Tracking Program (CEHTP) of the California Department of Public Health, which created an index of 7 indicators.¹³ These indicators, of climate change impacts and a community’s adaptive capacity, included:

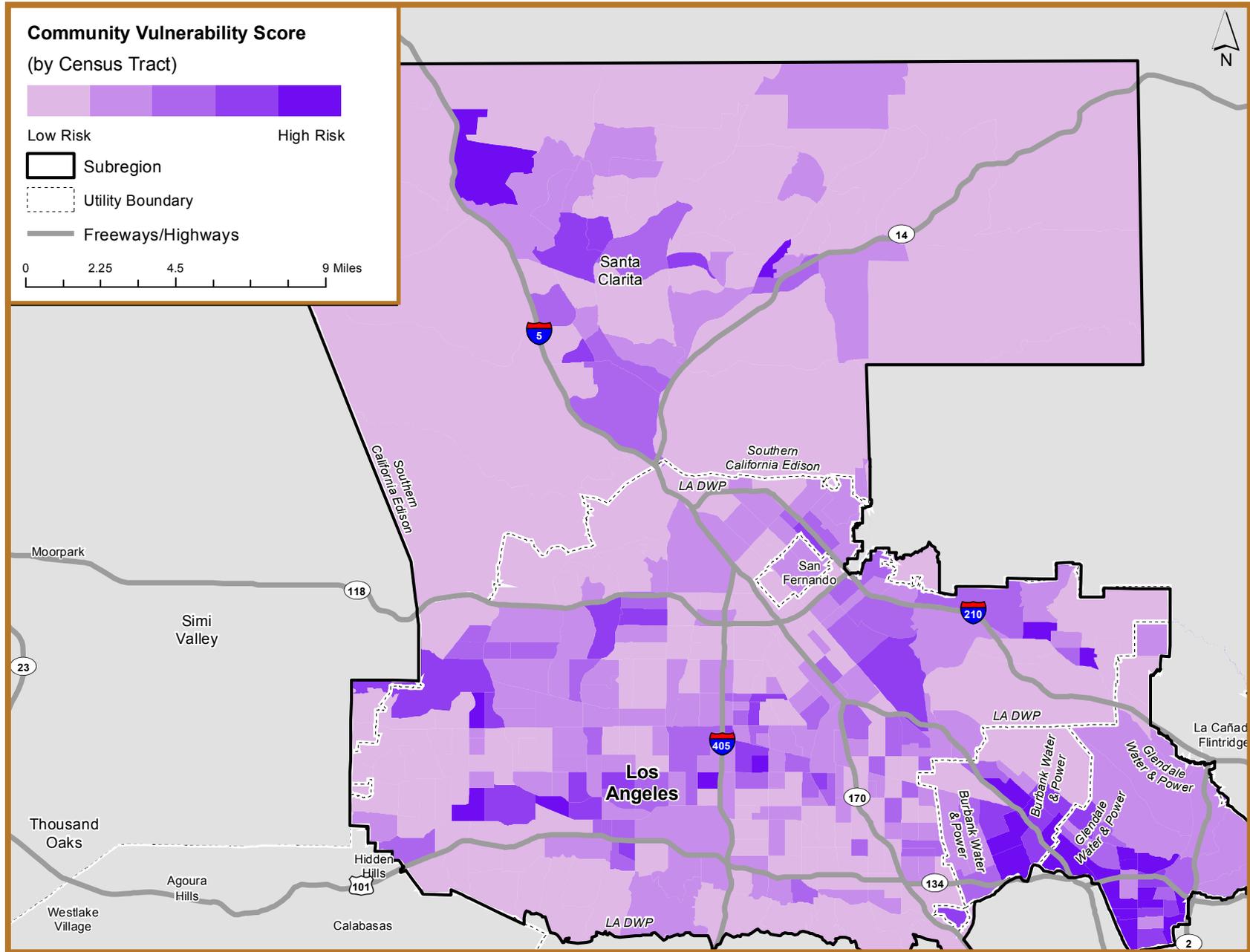
- Air conditioning (AC) ownership;
- Land cover characteristics (tree canopy and impervious surfaces);
- Access to transportation (transit and household car access);
- Social vulnerabilities (elderly living alone);
- Flood risk;
- Wildfire risk; and
- Sea level rise.

Note that the index does not include temperature predication data under climate change. Temperature predictions under climate change are shown in the Mid-Mentury Warming in the LA Region map.

Community Vulnerability to Climate Change in the San Fernando Valley			
Zip code(s) for which the census tract (in parentheses) falls within		Level*	Scores (on a scale of 1-3.788 with 3.788 being the most vulnerable)
91303 and 91367	(06037135112)	Top tier	3.250
91303 and 91367	(06037135112)	Top tier	3.250
91203 and 91202	(06037301701)	Top tier	3.222
91203 and 91202	(06037301701)	Top tier	3.222
90068, 91505, and 91506	(06037311700)	Top tier	3.222
90068, 91505, and 91506	(06037311700)	Top tier	3.222
90068, 91505, and 91506	(06037311700)	Top tier	3.222
91355, 91384, and 91354	(06037920200)	Top tier	3.200
91355, 91384, and 91354	(06037920200)	Top tier	3.200
91355, 91384, and 91354	(06037920200)	Top tier	3.200

*Relative to other census tracts in California

VULNERABILITY TO CLIMATE CHANGE



Source: California Environmental Health Tracking Program, August 2011. "Community Vulnerabilities to Climate Change." Environmental Health Investigations Branch, California Department of Public Health. Final report available at www.cehtp.org/p/climate_population_vulnerabilities.

SAN FERNANDO VALLEY: ENVIRONMENTAL HEALTH RISK



The map will inform the investment plan for the Greenhouse Gas Reduction Fund.

This map illustrates the screening tool that the State of California developed to identify communities disproportionately burdened by and vulnerable to multiple sources of pollution. Called the California Communities Environmental Health Screening Tool 2.0 (CalEnviroTool 2.0), it generates environmental health risk scores and rankings for every census tract in the state, incorporating data from 19 indicators within two categories: 1) pollution burden, exposure and environmental effect indicators; and 2) population characteristics, sensitive populations and socioeconomic factor indicators.¹⁴ High rankings indicate relatively high vulnerability.

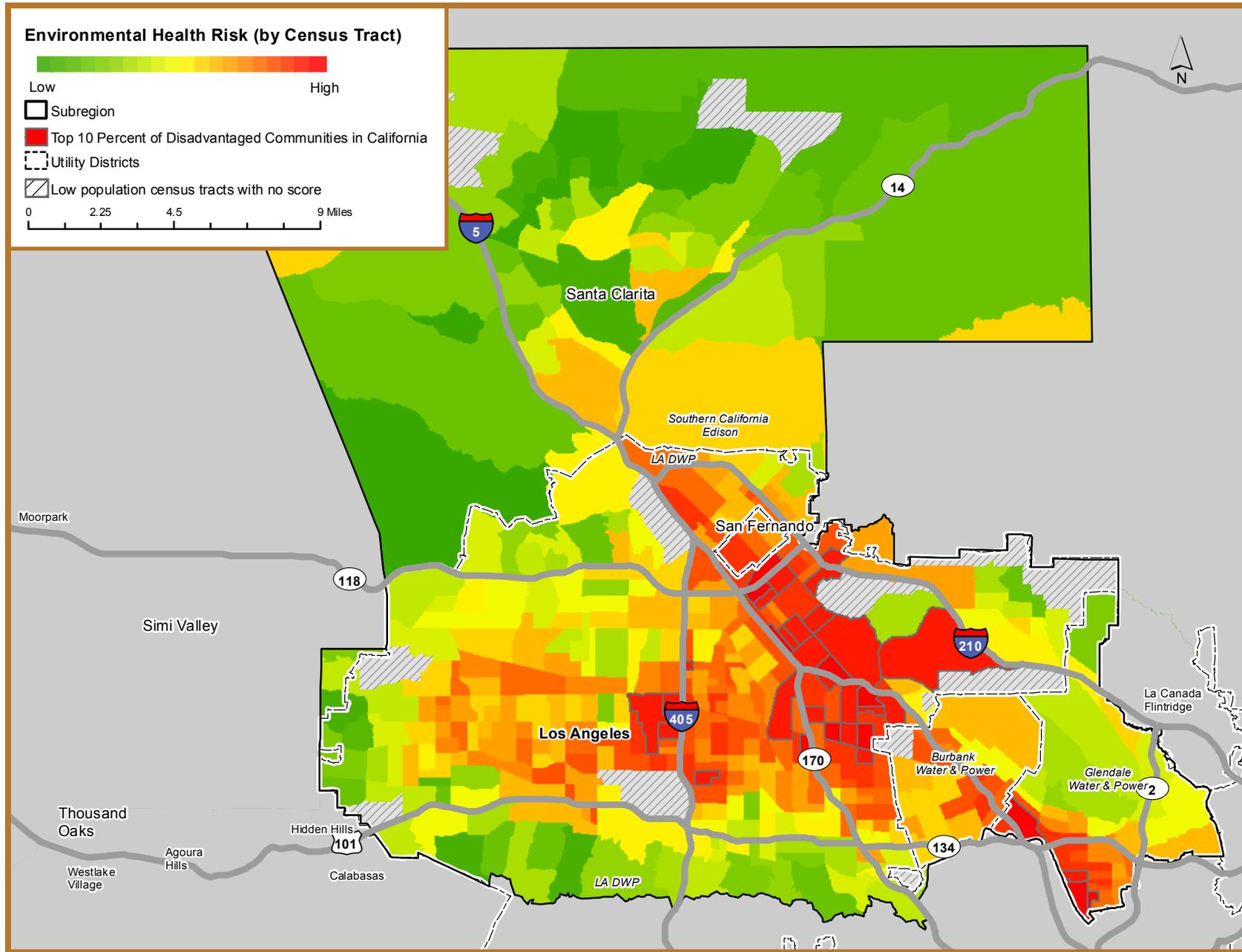
CalEnviroScreen will inform the State’s identification of disadvantaged communities pursuant to **Senate Bill 535** (SB 535). SB 535 requires that at least 25 percent of monies from the **Greenhouse Gas Reduction Fund** be directed to projects that benefit disadvantaged communities and at least 10 percent of program funding expended will be directed to projects located in disadvantaged communities. With revenue from the State’s cap-and-trade program, the Greenhouse Gas Reduction Fund is expected to soon generate billions of dollars every year for projects that reduce greenhouse gas emissions, create jobs and other co-benefits.

It is expected that communities with environmental risk scores in the top 20 percent will be prioritized for funding under the Greenhouse Gas Reduction Fund. To be conservative, however, the following map outlines with light grey lines communities with environmental risks scores in the top 10 percent. This map and others in the series, can help decision-makers and community members think strategically about where and what to invest in, to reduce pollution, expand clean energy generation, and create jobs.

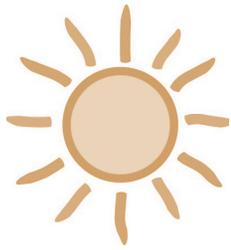
Results from the California Communities Environmental Health Screening Tool: Highest Scores for the San Fernando Valley				
Zip code(s) for which the census tract (in parentheses) falls within		Tier**	Percentile rank*	Score
91352 (6037122122)		Top Tier	96-100%	48.67
91605 and 91606 (6037123304)		Top Tier	96-100%	48.60
91331 (6037104822)		Top Tier	96-100%	47.95
91352 (6037121222)		Top Tier	96-100%	47.87
91331 and 91340 (6037104310)		Top Tier	96-100%	47.70
91204 (6037302401)		Top Tier	96-100%	46.35
91352 and 91605 (6037123010)		Top Tier	96-100%	45.14
91201 (6037301601)		Top Tier	96-100%	44.98
91331 (6037104401)		Top Tier	96-100%	44.85
91605 (6037122410)		Top Tier	96-100%	44.41

*Compared to other census tracts in California

ENVIRONMENTAL HEALTH RISK



Source: California Environmental Protection Agency and the Office of Environmental Health Hazard Assessment, "California Communities Environmental Health Screening Tool Version 2.0" (2014). <http://oehha.ca.gov/ej/ces2.html>. For the purpose of this report, the highest scoring census tracts are identified as disadvantaged communities and are delineated with a grey border and red color.



SAN FERNANDO VALLEY: SOLAR CAPACITY

The San Fernando Valley is endowed with both bountiful sunshine and numerous buildings that offer valuable siting opportunities for solar energy generation. This map identifies the rooftop solar opportunities across neighborhoods in the San Fernando Valley.¹⁶ Economic development planners, building owners and anyone interested in expanding solar power can use this map, along other parcel level analyses,¹⁷ to identify potential investment opportunities.¹⁸ Because cost-effectiveness increases with the size of a solar installation, the map statistics table presents the number of potential solar projects by size and the total rooftop potential.

4,836
job years could be created if 5% of rooftop solar potential in San Fernando Valley was realized.¹⁹

MAP STATISTICS	Single Family	86%	Total Rooftop Solar Potential	3,869 megawatts
	Multi-unit Residential	7%	Total Potential Sites	287,971 rooftops
	Commercial & Industrial	6%	Median Rooftop Availability	575 sq. ft.
	Government & Non-profit	1%	Median Potential of Available Parcels	5.52 kilowatts

Jobs: If just 5% of total rooftop solar potential in the San Fernando Valley was realized, approximately 4,836 job years would be created.¹⁹

Pollution Reduction: This would also eliminate 206,304 metric tons of carbon dioxide pollution each year.²⁰

FUNDING OPPORTUNITIES

State policies that expand opportunities for solar include the potentially billions of dollars from Proposition 39's Clean Energy Job Creation Fund as well as the AB 32 Greenhouse Gas Reduction Fund (cap-and-trade auction proceeds). In order for the San Fernando Valley to benefit, policymakers will have to be vigilant to ensure that residents, businesses and schools have access to these opportunities.

Job training will also be supported by Proposition 39. The map identifies solar job training sites that could be eligible for these resources.

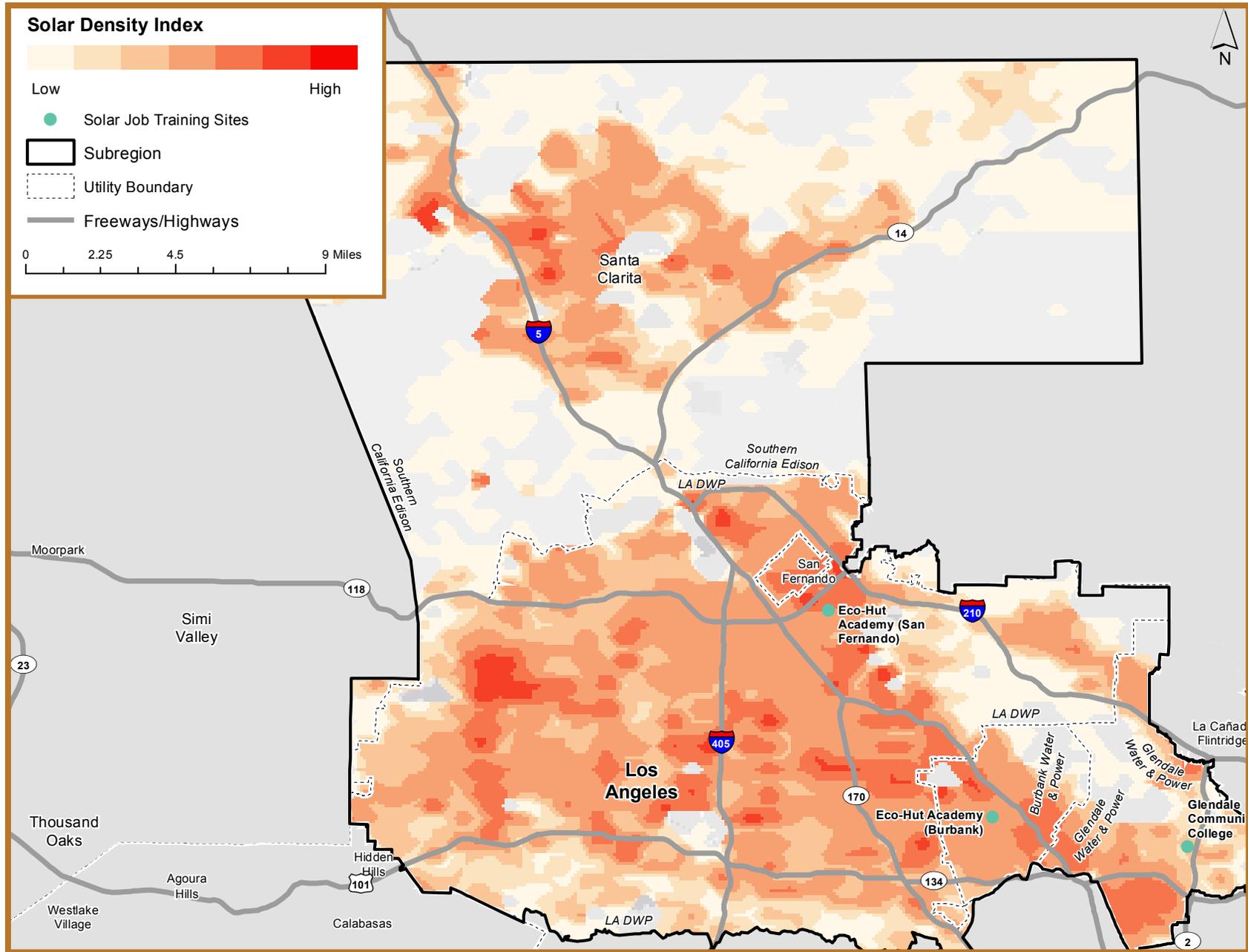
Local policies also provide financial incentives for solar investments. The Los Angeles Department of Water and Power offers: 1) the Solar Incentive Program, which provides qualifying customers with a "net meter" and then excess energy above what is consumed at their property can result in a credit on their bill, and 2) the Feed-in Tariff Set Pricing Program, which allows the LADWP to pay qualifying participants for the solar energy the participant generates. Southern California Edison offers incentives through the California Solar Initiative, including rebates on solar equipment and installation for photovoltaics and solar heating systems. Burbank Water and Power also offers a Solar Support Rebate Program that provides rebates for commercial and residential solar systems. At the time this profile went to print, new applications to the Glendale Water and Power's Residential Solar Solutions Program will go on a wait list.



Parcels with the Largest Potential Solar Projects in the San Fernando Valley

Rank	Potential (kW)	Parcel Address	Zip Code	Parcel Use Description
1	4,524	20525 Nordoff St; Los Angeles	91311	Light Manufacturing
2	4,173	25655 Springbrook Ave; Santa Clarita	91350	Heavy Manufacturing
3	3,652	1501 N Victory Pl; Burbank	91502	Shopping Centers (Regional)
4	3,597	5500 Canoga Ave; Los Angeles	91367	Heavy Manufacturing
5	3,366	8500 Balboa Blvd; Los Angeles	91406	Heavy Manufacturing

SOLAR CAPACITY



Source: Original solar capacity data: Los Angeles County, "Los Angeles County Solar Map." solarmap.lacounty.gov. Data modified by UCLA for the "Los Angeles County Solar Atlas," 2011, from which the above map was created. innovation.luskin.ucla.edu. Solar training sites data: USC Program for Environmental and Regional Equity, 2011. "Empowering LA's Solar Workforce." Sponsored by the Los Angeles Business Council. Original data from Environment California Research and Policy Center, 2011. "Building a Clean Energy Workforce: Preparing Californians for New Opportunities in the State's Green Economy."

SAN FERNANDO VALLEY: ENERGY EFFICIENCY POTENTIAL: RESIDENTIAL BUILDINGS/HOMES



77% of homes in San Fernando Valley were built before the state's energy efficiency building codes.

Simple retrofits can save money and make the home more comfortable year round.

The map highlights neighborhoods where potential for energy efficiency investments might be greatest for residential homes.²¹ Buildings constructed before 1978 in general produce greater cost savings when retrofitted than buildings built after 1978.²² The potential for energy efficiency investments is summarized for the San Fernando Valley in the map statistics table.

MAP STATISTICS	Residential Buildings in the San Fernando Valley		All Buildings in the San Fernando Valley	
	# of single-family homes	246,985	# of total buildings	287,401
	% built before 1978	77%	% built before 1978	77%
	Average square footage of pre-1978 buildings	2,961	Average square footage of pre-1978 buildings	3,887
	% built in or after 1978	23%	% built in or after 1978	23%
	Average square footage of post-1978 buildings	4,080	Average square footage post-1978 buildings	6,139

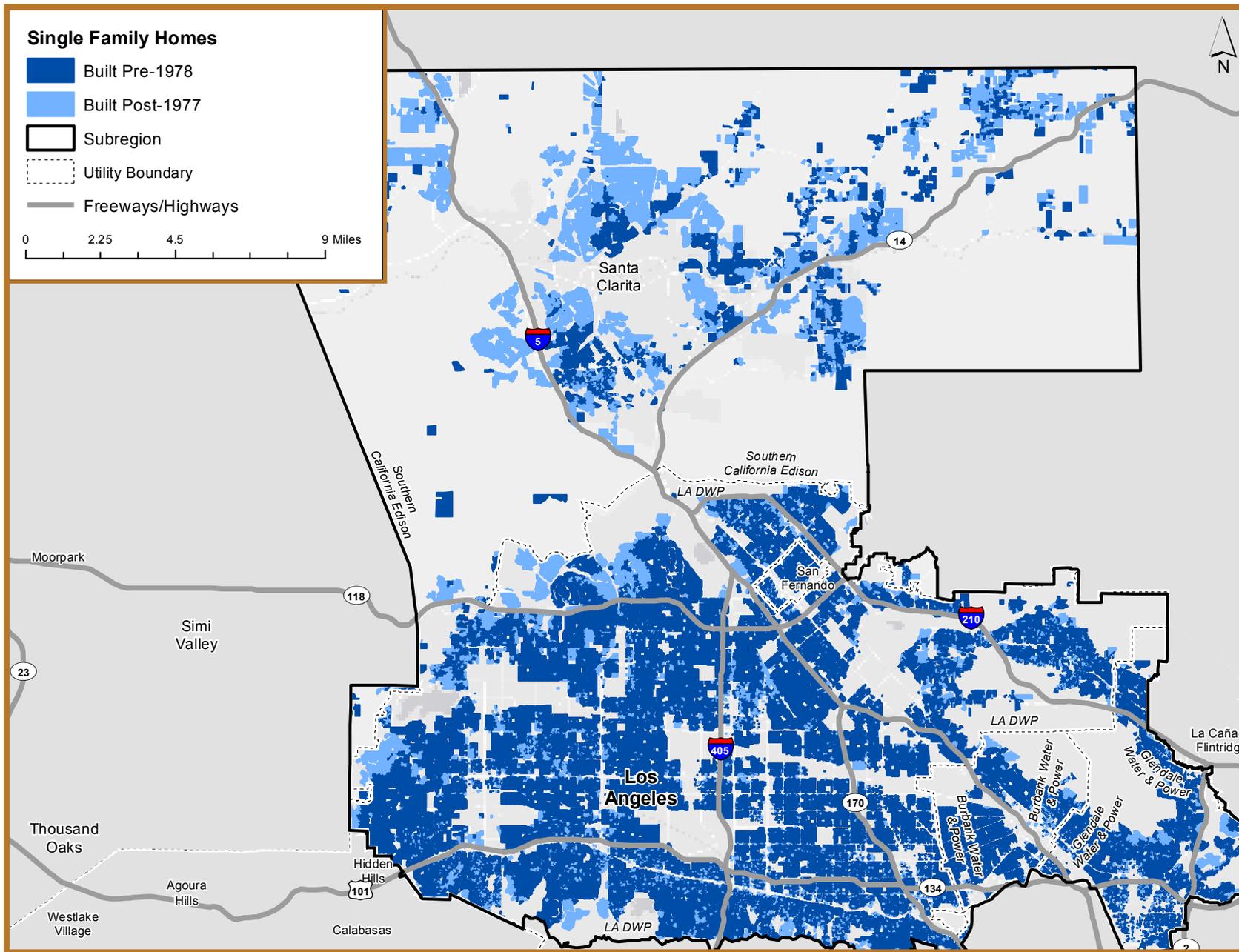
FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The San Fernando Valley could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would help consumers save money on their electricity bills, support local green jobs and reduce pollution.

Local policies provide financial incentives to homeowners for energy efficiency investments. Through Energy Upgrade California™, incentives of up to \$4,500 are available to residential customers through their local utility. These utilities also offer other rebate, recycling and consultation programs, for example:

- Los Angeles Department of Water and Power—
LADWP has a Water Conservation Rebate Program, a Refrigerator Recycling Program, and the Home Energy Improvement Program, which helps homeowners identify the most appropriate and cost effective improvements for their home.
- Burbank Water and Power—
Offers rebates for energy efficiency upgrades through the Home Rewards Rebate Program as well as a Green Home House Call program that provides free expert evaluation and installation of energy efficiency products, among other residential programs.
- Glendale Water and Power—
Offers a Smart Home Energy and Water Savings Rebate Program, which provides rebates for various energy efficiency upgrades, and a Tree Power Program that provides up to three shade trees per residential customer.
- Southern California Edison—
Offers a Residential Energy Efficiency Rebate Program that provides rebates for a wide range of energy efficiency upgrades.

ENERGY EFFICIENCY POTENTIAL: RESIDENTIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

SAN FERNANDO VALLEY: ENERGY EFFICIENCY POTENTIAL: MULTI-UNIT RESIDENTIAL BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for multi-unit residential buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for the San Fernando Valley in the map statistics table.

81% of apartments and other multi-unit residential buildings in San Fernando Valley were built before the state's energy efficiency building codes.

The cheapest energy is the energy not used in the first place.

		Multi-unit Residential Buildings in the San Fernando Valley		All Buildings in the San Fernando Valley	
MAP STATISTICS	# of multi-unit residential buildings	20,948	# of total buildings	287,401	
	% built before 1978	81%	% built before 1978	77%	
	Average square footage of pre-1978 buildings	6,633	Average square footage of pre-1978 buildings	3,887	
	% built in or after 1978	19%	% built in or after 1978	23%	
	Average square footage of post-1978 buildings	13,292	Average square footage post-1978 buildings	6,139	

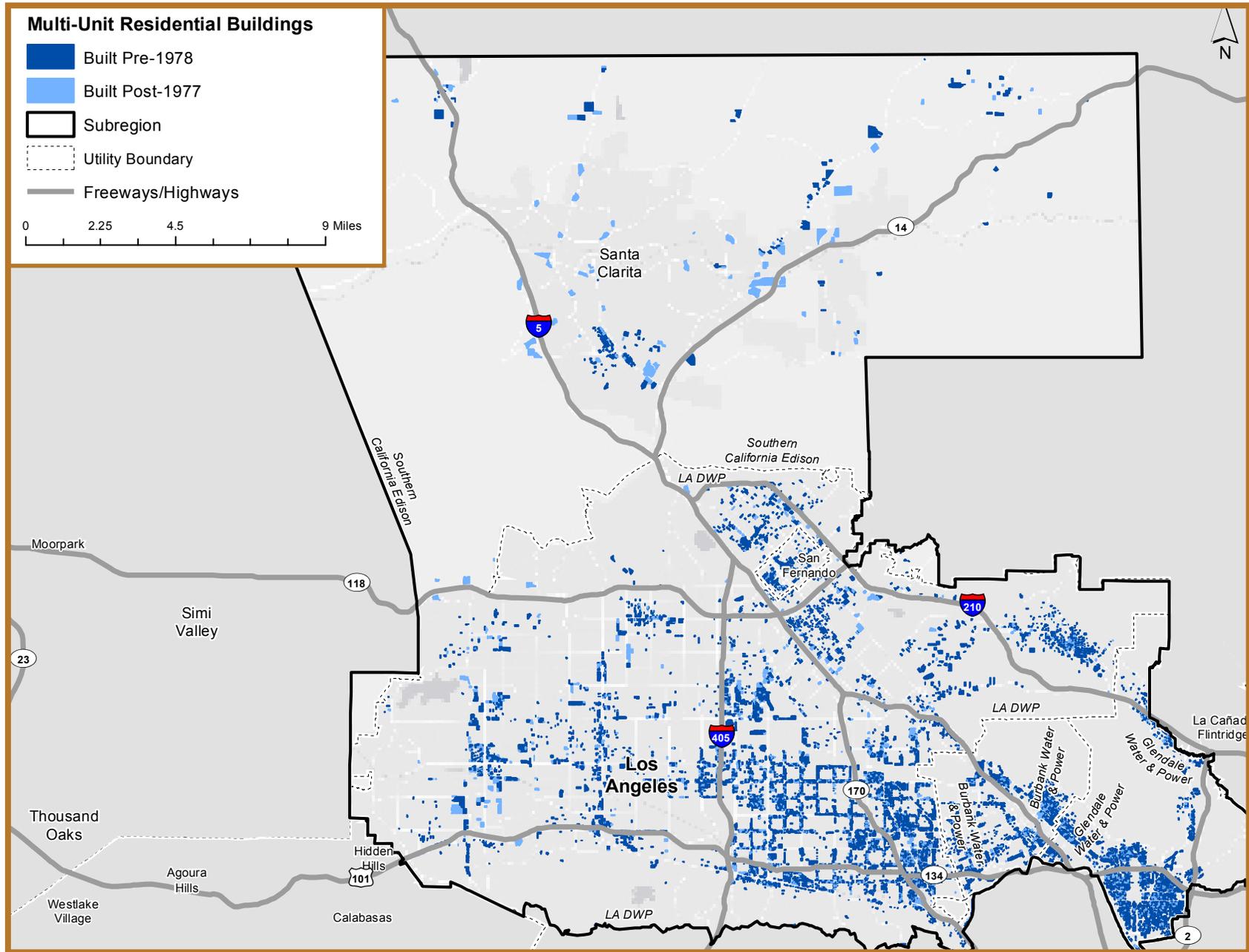
FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The San Fernando Valley could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would help consumers and property owners save money on their electricity bills, support local green jobs and reduce pollution.

Local policies also provide financial incentives for energy efficiency investments in multi-unit residential buildings. The previous narrative page describes incentive programs for residential consumers offered by utilities in the San Fernando Valley. Other relevant programs are:

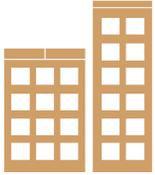
- Los Angeles Department of Water and Power—
Offers a refrigerator exchange program for low-income and senior citizen customers, and a technical assistance program that provides multi-unit residential property owners with incentives for water saving equipment.
- Burbank Water and Power—
Offers rebates to multi-unit building owners and low-income residential customers for energy efficiency upgrades through the Home Rewards Rebate Program. Also offers different level of monetary awards to multi-unit building owners based on LEED level.
- Glendale Water and Power—
Offers technical assistance for installing water saving equipment in multi-unit housing.
- Southern California Edison—
Offers a multi-family energy efficiency rebate program that provides rebates for lighting, HVAC, window insulation and more.

ENERGY EFFICIENCY POTENTIAL: MULTI-UNIT RESIDENTIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

SAN FERNANDO VALLEY: ENERGY EFFICIENCY POTENTIAL: COMMERCIAL AND INDUSTRIAL BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for commercial and industrial buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for the San Fernando Valley in the statistics table, below.

30%
on average of
the energy used
in commercial
buildings is wasted,
according to the
U.S. Environmental
Protection Agency.

Retrofitting
buildings to be
energy efficient
saves money and
creates jobs.

MAP
STATISTICS

	Commercial and Industrial Buildings in the San Fernando Valley		All Buildings in the San Fernando Valley	
# of commercial and industrial buildings	18,244	# of total buildings	287,401	
% built before 1978	70%	% built before 1978	77%	
Average square footage of pre-1978 buildings	12,404	Average square footage of pre-1978 buildings	3,887	
% built in or after 1978	30%	% built in or after 1978	23%	
Average square footage of post-1978 buildings	21,995	Average square footage post-1978 buildings	6,139	

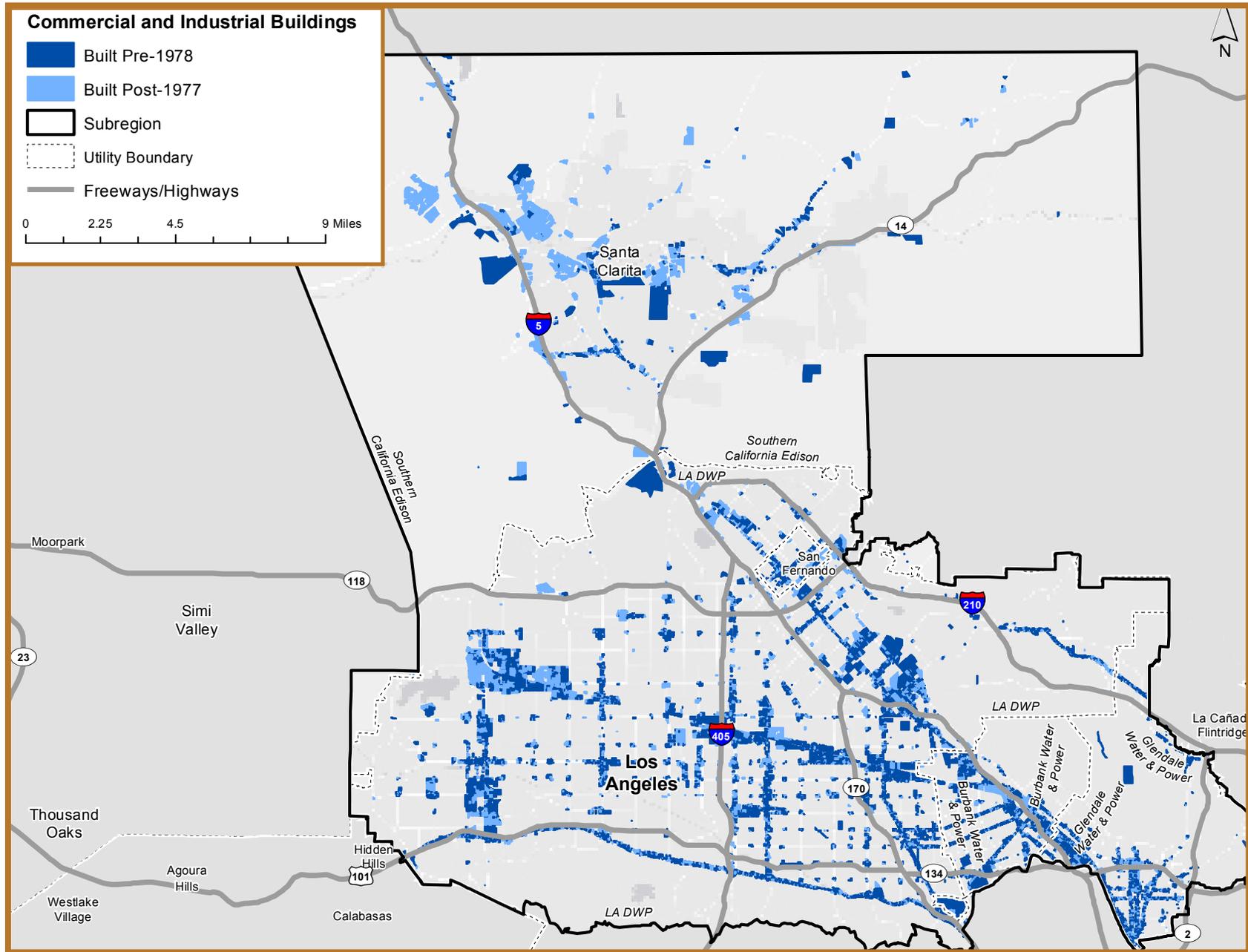
FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The San Fernando Valley could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would help businesses save money on their electricity bills, support local green jobs and reduce pollution.

Local policies also provide financial incentives to commercial and industrial consumers of local utilities for energy efficiency investments.

- Los Angeles Department of Water and Power—
Programs offered include: Commercial Lighting Efficiency Offer Program, Commercial Refrigeration Chiller Efficiency Program, and a Water Conservation Rebate Program.
- Burbank Water and Power—
Provides rebates to business customers to install energy efficiency upgrades such as for lighting, HVAC and heat pumps.
- Glendale Water and Power—
Offers incentives for energy efficiency improvements tailored to small and mid-sized businesses as well as large businesses.
- Southern California Edison—
Programs offered include: Demand Response, Energy Efficiency Customized Solutions, and Energy Efficiency Express Solutions.
- Southern California Gas Company—
Offers a range of services including: Energy Efficiency Calculated Incentive Program and Energy Efficiency Rebates for Business Program.

ENERGY EFFICIENCY POTENTIAL: COMMERCIAL AND INDUSTRIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

SAN FERNANDO VALLEY: ENERGY EFFICIENCY POTENTIAL: GOVERNMENT AND NON-PROFIT BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for government and non-profit owned buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for the San Fernando Valley in the statistics table, below.

Billions

of \$

are on the table for energy efficiency and clean energy investments in California.

		Government and Non-profit Buildings in the San Fernando Valley		All Buildings in the San Fernando Valley	
MAP STATISTICS	# of government and non-profit buildings	1,224	# of total buildings	287,401	
	% built before 1978	83%	% built before 1978	77%	
	Average square footage of pre-1978 buildings	22,752	Average square footage of pre-1978 buildings	3,887	
	% built in or after 1978	17%	% built in or after 1978	23%	
	Average square footage of post-1978 buildings	29,631	Average square footage post-1978 buildings	6,139	

FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The San Fernando Valley could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would save taxpayers' money while supporting local green jobs and reducing pollution.

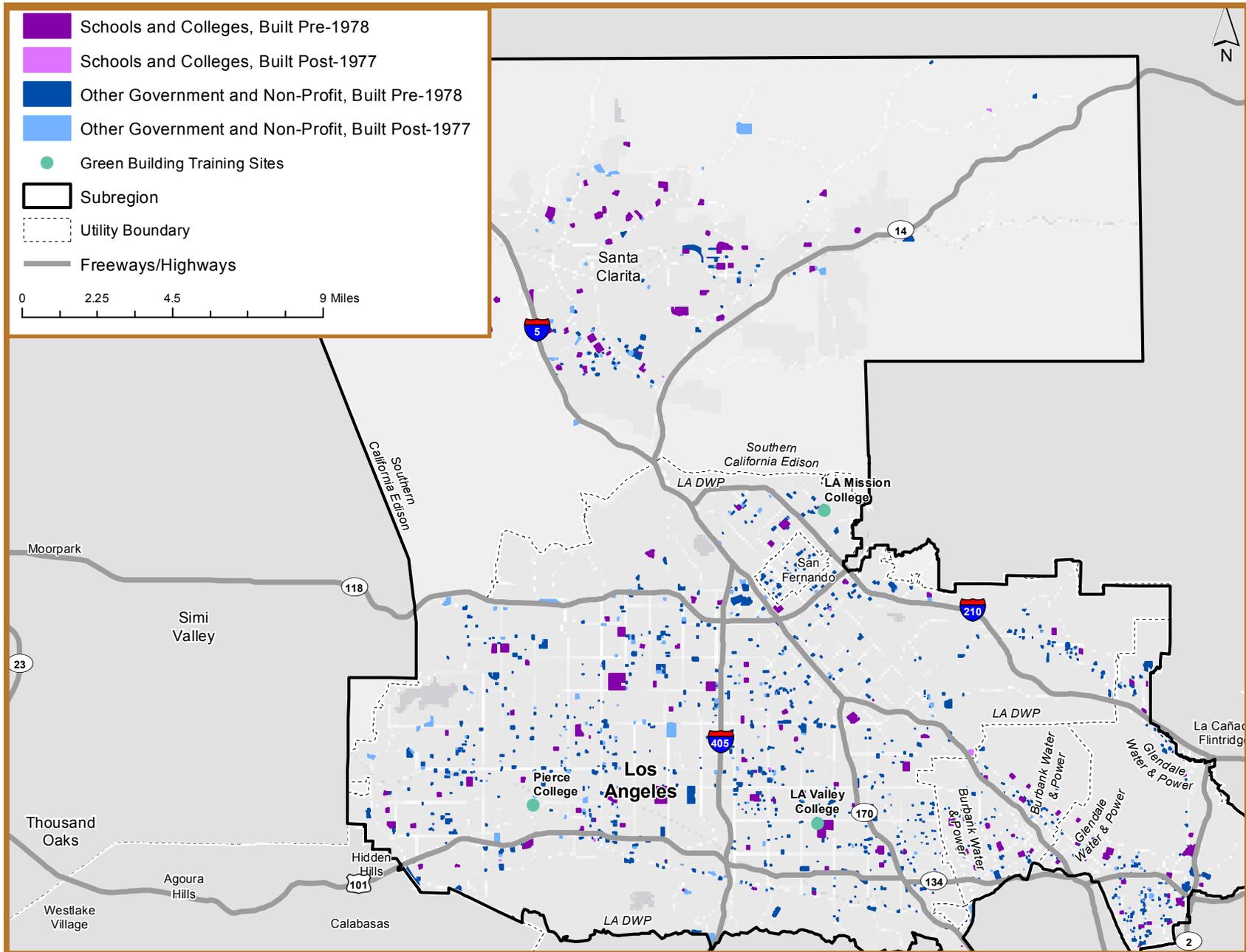
Municipal buildings will be eligible recipients for Proposition 39 funds. The map identifies the municipal buildings constructed before 1978, an indication of likely cost effectiveness for a retrofit.

Schools are pulled out because schools will be prime recipients of Proposition 39 funds. As the map indicates, numerous schools were constructed pre-1978, before energy efficiency building codes were in effect.

Green job training sites will also be supported by Proposition 39 funds. The map identifies green buildings training sites that could be eligible for these funds.



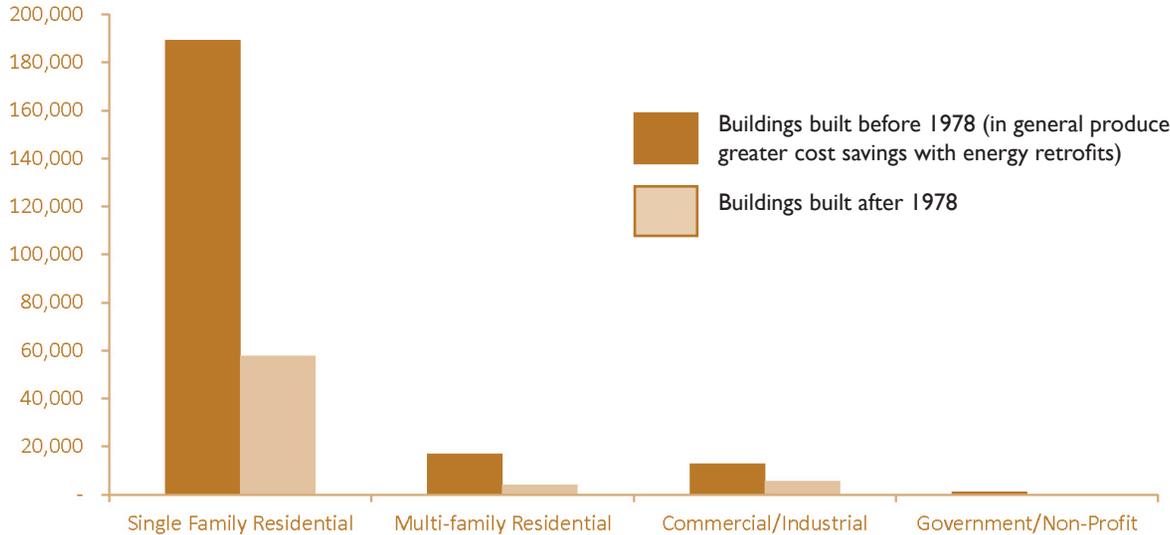
ENERGY EFFICIENCY POTENTIAL: GOVERNMENT AND NON-PROFIT



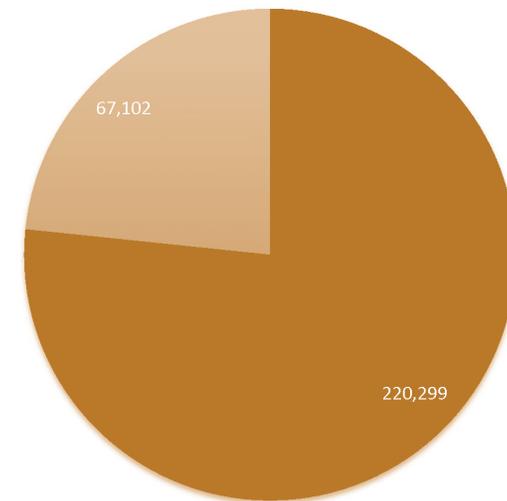
Source: Building age data: Los Angeles County Assessor; Schools: Extracted from Points of Interest (LMS Data) from LA County GIS Portal; Green building training site data: USC Program for Environmental and Regional Equity. Original data from Environment California Research and Policy Center, 2011. "Building a Clean Energy Workforce: Preparing Californians for New Opportunities in the State's Green Economy."

SAN FERNANDO: ENERGY EFFICIENCY POTENTIAL SUMMARY

NUMBER OF BUILDINGS BY SECTOR



ALL BUILDINGS IN THE SAN FERNANDO VALLEY

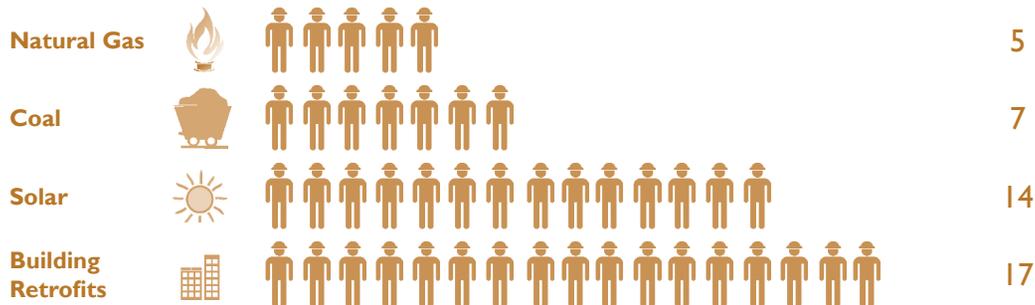


LINKING INVESTMENTS IN WORKFORCE TRAINING TO SUSTAINABLE JOBS

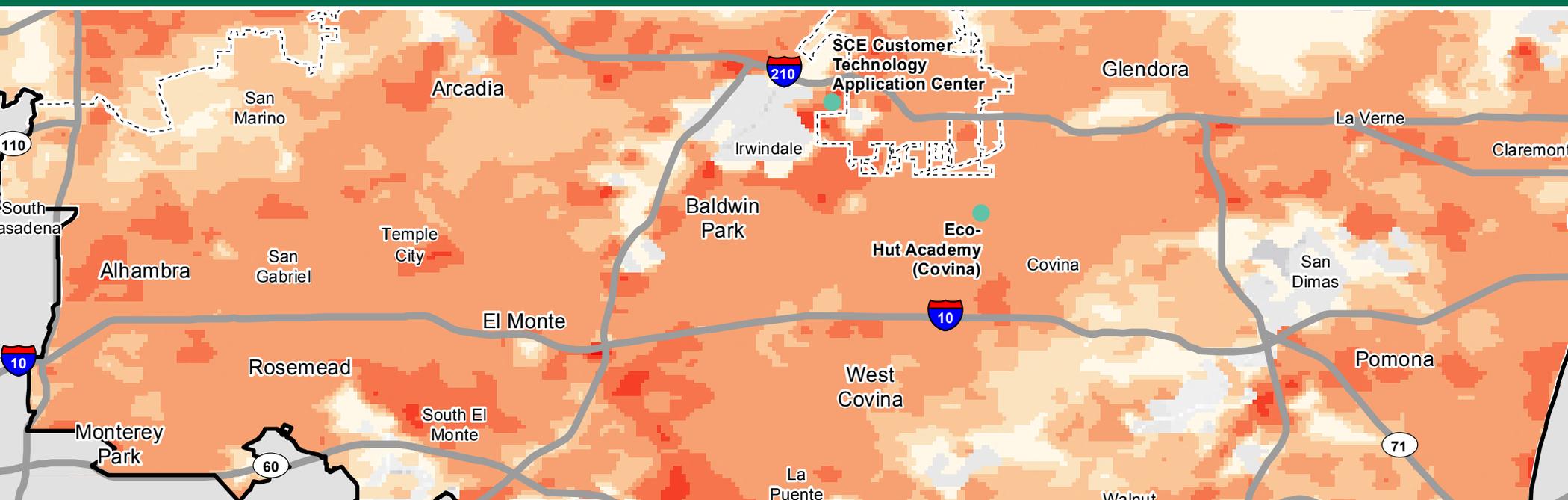
“Sustainable jobs” pay prevailing wages and provide healthcare and access to opportunities for wage growth.²³ To effectively link Proposition 39’s funding for worker training with sustainable jobs, policymakers should consider best practices for a strong pipeline between training programs and careers. For example, the Los Angeles Community College District, the Los Angeles Unified School District and the City of Los Angeles have approved project labor/stabilization agreements, or contracts with labor unions, that include goals for local hires and apprentices workers. Apprenticeship programs can create a strong pipeline between education and sustainable jobs and careers.

THE TRUTH ABOUT JOB CREATION

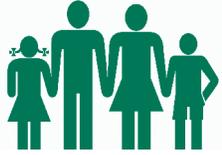
Energy efficiency investments create costs savings for the customer and jobs for the region. Invest \$1 million in the following industries, you get this many jobs.²⁴



PROFILE OF CLEAN ENERGY INVESTMENT POTENTIAL SAN GABRIEL VALLEY



SAN GABRIEL VALLEY: VULNERABILITY TO CLIMATE CHANGE



The map can inform spatially-targeted strategies to reduce health risks from climate change.

Knowing what communities are vulnerable to climate change, as identified in the map and table below, enables policymakers to identify strategies to reduce risk and improve community resiliency. Climate change will increase health issues in many communities.

This map illustrates the extent of vulnerability to climate change in the communities (at the census tract level) of the San Gabriel Valley. The data comes from the California Environmental Health Tracking Program (CEHTP) of the California Department of Public Health, which created an index of 7 indicators.¹³ These indicators, of climate change impacts and a community’s adaptive capacity, included:

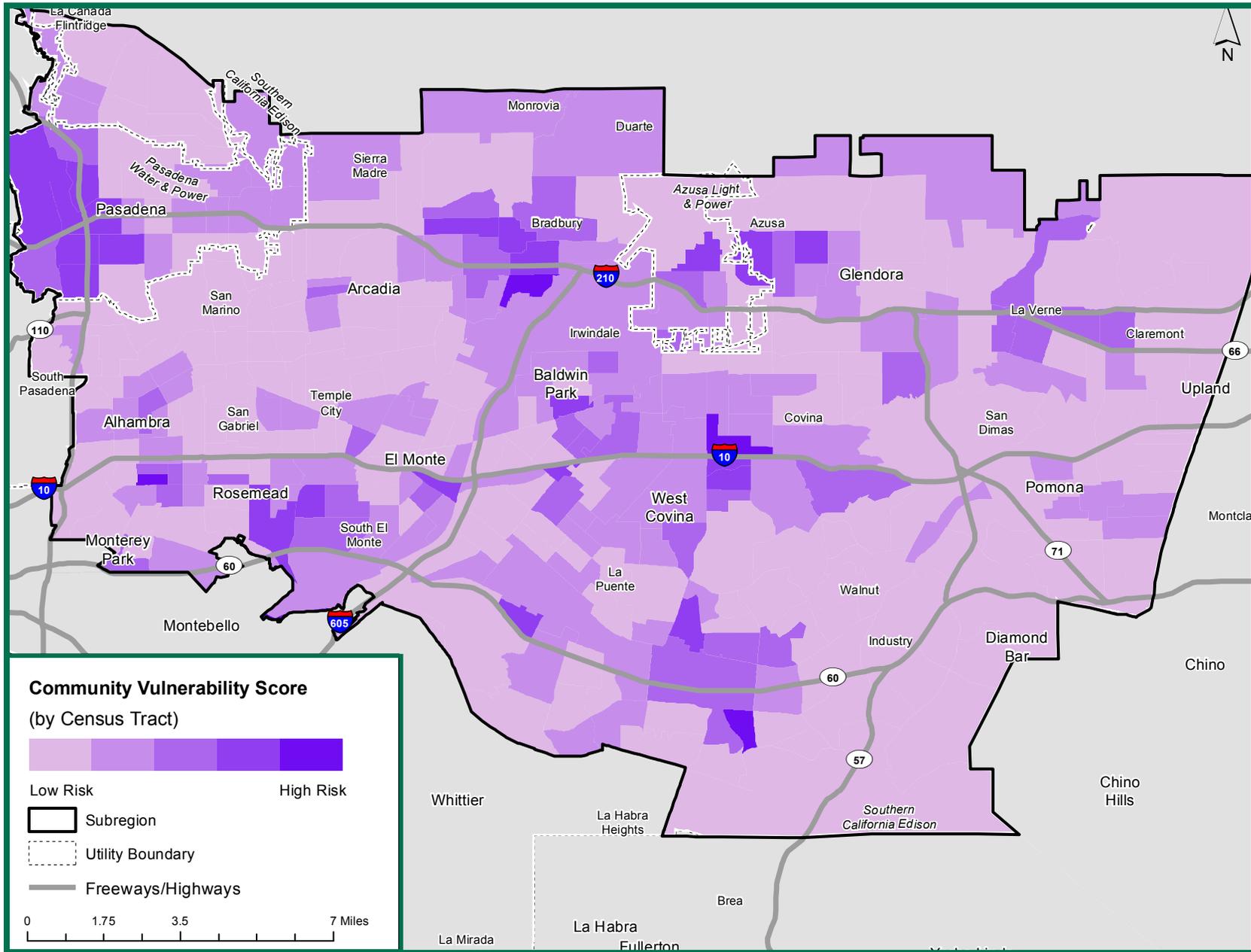
- Air conditioning (AC) ownership;
- Land cover characteristics (tree canopy and impervious surfaces);
- Access to transportation (transit and household car access);
- Social vulnerabilities (elderly living alone);
- Flood risk;
- Wildfire risk; and
- Sea level rise.

Note that the index does not include temperature predication data under climate change. Temperature predictions under climate change are shown in the Mid-Mentury Warming in the LA Region map.

Community Vulnerability to Climate Change in the San Gabriel Valley			
Zip code(s) for which the census tract (in parentheses) falls within		Level*	Scores (on a scale of 1-3.788 with 3.788 being the most vulnerable)
90660	(06037500500)	Top tier	3.333
91748	(06037408704)	Top tier	3.000
90640 and 91733	(06037530004)	Top tier	2.889
90640 and 91733	(06037530004)	Top tier	2.889
91791, 91723, and 91722	(06037406200)	Top tier	2.889
91791, 91723, and 91722	(06037406200)	Top tier	2.889
91791, 91723, and 91722	(06037406200)	Top tier	2.889
91754	(06037481714)	Top tier	2.875
91010	(06037430102)	Top tier	2.875
91733	(06037433501)	2nd tier	2.778

*Relative to other census tracts in California

VULNERABILITY TO CLIMATE CHANGE



Source: California Environmental Health Tracking Program, August 2011. "Community Vulnerabilities to Climate Change." Environmental Health Investigations Branch, California Department of Public Health. Final report available at www.cehtp.org/p/climate_population_vulnerabilities.

SAN GABRIEL VALLEY: ENVIRONMENTAL HEALTH RISK



The map will inform the investment plan for the Greenhouse Gas Reduction Fund.

This map illustrates the screening tool that the State of California developed to identify communities disproportionately burdened by and vulnerable to multiple sources of pollution. Called the California Communities Environmental Health Screening Tool 2.0 (CalEnviroTool 2.0), it generates environmental health risk scores and rankings for every census tract in the state, incorporating data from 19 indicators within two categories: 1) pollution burden, exposure and environmental effect indicators; and 2) population characteristics, sensitive populations and socioeconomic factor indicators.¹⁴ High rankings indicate relatively high vulnerability.

CalEnviroScreen will inform the State's identification of disadvantaged communities pursuant to **Senate Bill 535** (SB 535). SB 535 requires that at least 25 percent of monies from the **Greenhouse Gas Reduction Fund** be directed to projects that benefit disadvantaged communities and at least 10 percent of program funding expended will be directed to projects located in disadvantaged communities. With revenue from the State's cap-and-trade program, the Greenhouse Gas Reduction Fund is expected to soon generate billions of dollars every year for projects that reduce greenhouse gas emissions, create jobs and other co-benefits.

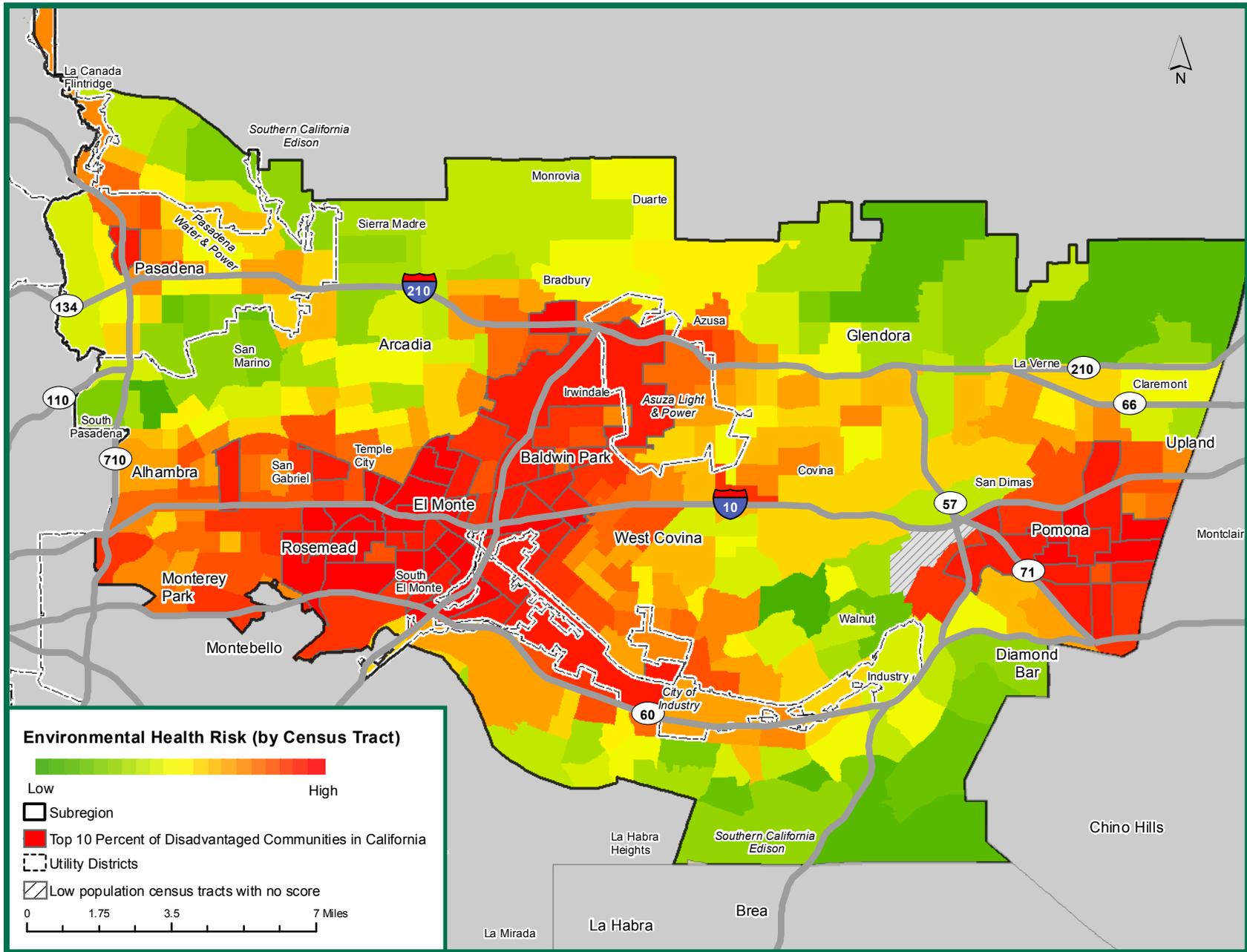
It is expected that communities with environmental risk scores in the top 20 percent will be prioritized for funding under the Greenhouse Gas Reduction Fund. To be conservative, however, the following map outlines with light grey lines communities with environmental risks scores in the top 10 percent. This map and others in the series, can help decision-makers and community members think strategically about where and what to invest in, to reduce pollution, expand clean energy generation, and create jobs.

Results from the California Communities Environmental Health Screening Tool: Highest Scores for the San Gabriel Valley

Zip code(s) for which the census tract (in parentheses) falls within	Tier*	Percentile rank*	Score
91731 (6037432801)	Top Tier	96-100%	57.41
91733 (6037433700)	Top Tier	96-100%	53.03
91767 (6037402702)	Top Tier	96-100%	51.57
91706 (6037404703)	Top Tier	96-100%	50.51
91733 (6037433501)	Top Tier	96-100%	50.28
91732 (6037433302)	Top Tier	96-100%	49.78
91731 and 91733 (6037433200)	Top Tier	96-100%	49.32
91731 (6037432802)	Top Tier	96-100%	48.23
91733 (6037433102)	Top Tier	96-100%	47.59
91767 and 91768 (6037402303)	Top Tier	96-100%	46.51

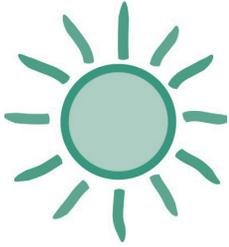
*Compared to other census tracts in California

ENVIRONMENTAL HEALTH RISK



Source: California Environmental Protection Agency and the Office of Environmental Health Hazard Assessment, "California Communities Environmental Health Screening Tool Version 2.0" (2014). <http://oehha.ca.gov/ej/ces2.html>. For the purpose of this report, the highest scoring census tracts are identified as disadvantaged communities and are delineated with a grey border and red color.

SAN GABRIEL VALLEY: SOLAR CAPACITY



4,707
job years could be created if 5% of rooftop solar potential in San Gabriel Valley was realized.¹⁹

The San Gabriel Valley is endowed with both bountiful sunshine and numerous buildings that offer valuable siting opportunities for solar energy generation. This map identifies the rooftop solar opportunities across neighborhoods in the San Gabriel Valley.¹⁶ Economic development planners, building owners and anyone interested in expanding solar power can use this map, along other parcel level analyses,¹⁷ to identify potential investment opportunities.¹⁸ Because cost-effectiveness increases with the size of a solar installation, the map statistics table presents the number of potential solar projects by size and the total rooftop potential.

MAP STATISTICS	Single Family	85%	Total Rooftop Solar Potential	3,766 megawatts
	Multi-unit Residential	8%	Total Potential Sites	301,524 rooftops
	Commercial & Industrial	6%	Median Rooftop Availability	575 sq. ft.
	Government & Non-profit	1%	Median Potential of Available Parcels	5.52 kilowatts

Jobs: If just 5% of total rooftop solar potential in the San Gabriel Valley was realized, approximately 4,707 job years would be created.¹⁹

Pollution Reduction: This would also eliminate 200,794 metric tons of carbon dioxide pollution each year.²⁰

FUNDING OPPORTUNITIES

State policies that expand opportunities for solar include the potentially billions of dollars from Proposition 39’s Clean Energy Job Creation Fund as well as the AB 32 Greenhouse Gas Reduction Fund (cap-and-trade auction proceeds). In order for the San Gabriel Valley to benefit, policymakers will have to be vigilant to ensure that residents, businesses and schools have access to these opportunities.

Job training will also be supported by Proposition 39. The map identifies solar job training sites that could be eligible for these resources.

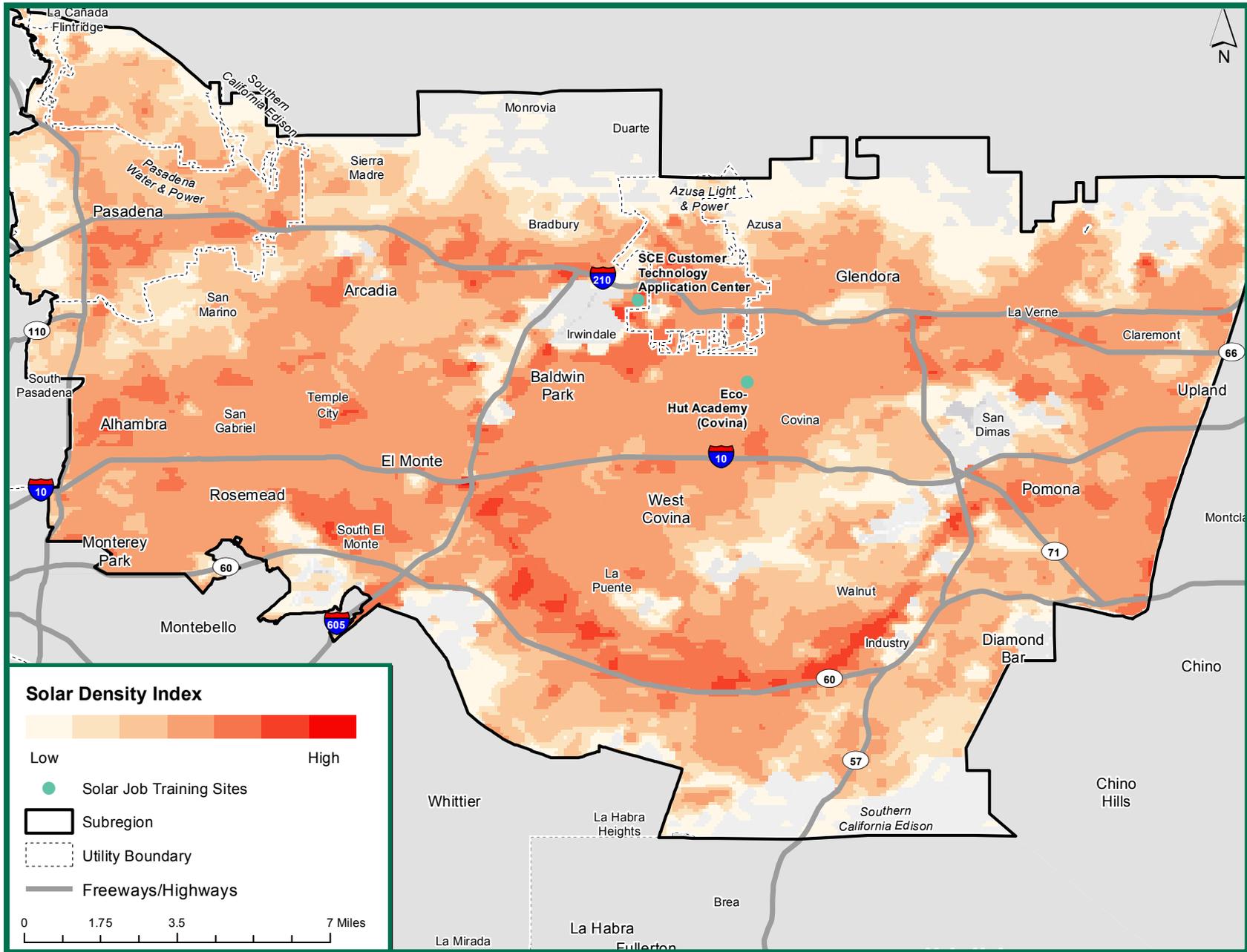
Local policies also provide financial incentives for solar investments. Southern California Edison, Pasadena Water and Power, and Azusa Light and Power all provide rebates, depending on customer class and size of installation, for photovoltaic (PV) systems. (At time of print, Azusa Light and Power’s program is currently oversubscribed.)



Parcels with the Largest Potential Solar Projects in the San Gabriel Valley

Rank	Potential (kW)	Parcel Address	Zip Code	Parcel Use Description
1	7,340	21749 Baker Pkwy; Industry	91748	Warehousing, Distribution, Storage
2	7,201	15541 Gale Ave; Industry	91745	Warehousing, Distribution, Storage
3	6,933	20005 Business Pkwy; Industry	91789	Warehousing, Distribution, Storage
4	6,912	1601 W Mission Blvd; Pomona	91766	Warehousing, Distribution, Storage
5	5,931	21535 Baker Pkwy; Industry	91748	Warehousing, Distribution, Storage

SOLAR CAPACITY



Source: Original solar capacity data: Los Angeles County, "Los Angeles County Solar Map." solarmap.lacounty.gov. Data modified by UCLA for the "Los Angeles County Solar Atlas," 2011, from which the above map was created. innovation.luskin.ucla.edu. Solar training sites data: USC Program for Environmental and Regional Equity, 2011. "Empowering LA's Solar Workforce." Sponsored by the Los Angeles Business Council. Original data from Environment California Research and Policy Center, 2011. "Building a Clean Energy Workforce: Preparing Californians for New Opportunities in the State's Green Economy."

SAN GABRIEL VALLEY: ENERGY EFFICIENCY POTENTIAL: RESIDENTIAL BUILDINGS/HOMES



80% of homes in San Gabriel Valley were built before the state's energy efficiency building codes.

Simple retrofits can save money and make the home more comfortable year round.

The map highlights neighborhoods where potential for energy efficiency investments might be greatest for residential homes.²¹ Buildings constructed before 1978 in general produce greater cost savings when retrofitted than buildings built after 1978.²² The potential for energy efficiency investments is summarized for the San Gabriel Valley in the map statistics table.

		Residential Buildings in the San Gabriel Valley	All Buildings in the San Gabriel Valley	
MAP STATISTICS	# of single-family homes	257,134	# of total buildings in the San Gabriel Valley	300,991
	% built before 1978	80%	% built before 1978	80%
	Average square footage of pre-1978 buildings	2,747	Average square footage of pre-1978 buildings	3,625
	% built in or after 1978	20%	% built in or after 1978	20%
	Average square footage of post-1978 buildings	3,720	Average square footage post-1978 buildings	6,216

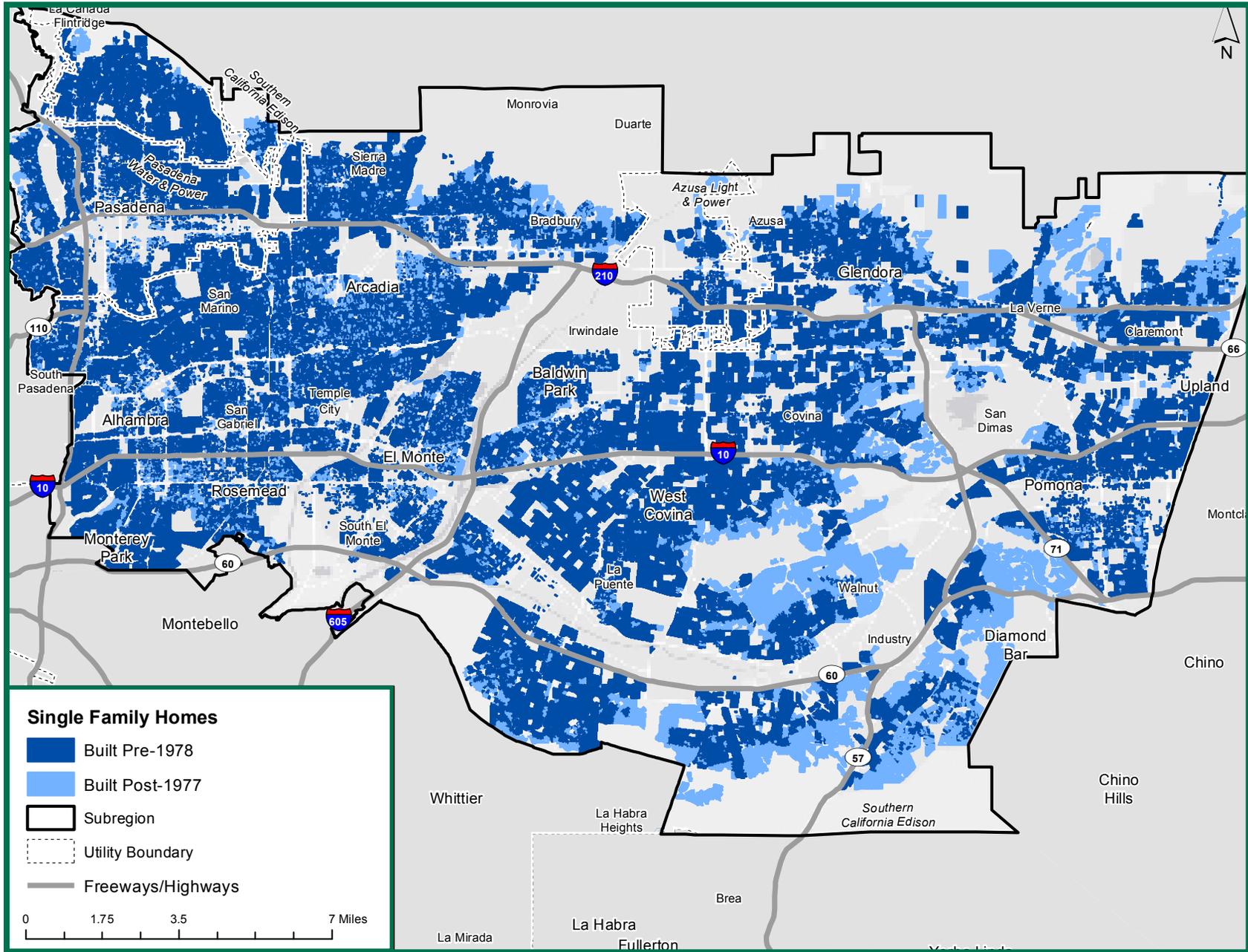
FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The San Gabriel Valley could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would help consumers save money on their electricity bills, support local green jobs and reduce pollution.

Local policies provide financial incentives to homeowners for energy efficiency investments. Local utility programs for residential customers include:

- Southern California Gas Company— Provides rebates for energy efficient upgrades, Energy Star equipment.
- Southern California Edison— Provides rebates for a wide range of energy efficiency upgrades, including up to \$1,100 to help with A/C installation, maintenance and repair.
- Pasadena Water and Power— Programs include: Energy Star Appliances and Lighting Rebate, Efficient Home Incentive Program, Home Energy Reports Pilot Program, and Refrigerator Recycling Rebate.
- Azusa Light and Power— Offers a range of incentives including up to \$250 for installing an Energy Star air conditioner; rebates on other Energy Star appliances, and up to \$250 in home weatherization rebates (e.g. installing fans and insulation).

ENERGY EFFICIENCY POTENTIAL: RESIDENTIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

SAN GABRIEL VALLEY: ENERGY EFFICIENCY POTENTIAL: MULTI-UNIT RESIDENTIAL BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for multi-unit residential buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for the San Gabriel Valley in the map statistics table.

91% of apartments and other multi-unit residential buildings in San Gabriel Valley were built before the state's energy efficiency building codes.

The cheapest energy is the energy not used in the first place.

		Multi-unit Residential Buildings in the San Gabriel Valley		All Buildings in the San Gabriel Valley	
MAP STATISTICS	# of multi-unit residential buildings	24,855	# of total buildings	300,991	
	% built before 1978	91%	% built before 1978	80%	
	Average square footage of pre-1978 buildings	5,411	Average square footage of pre-1978 buildings	3,625	
	% built in or after 1978	9%	% built in or after 1978	20%	
	Average square footage of post-1978 buildings	9,530	Average square footage post-1978 buildings	6,216	

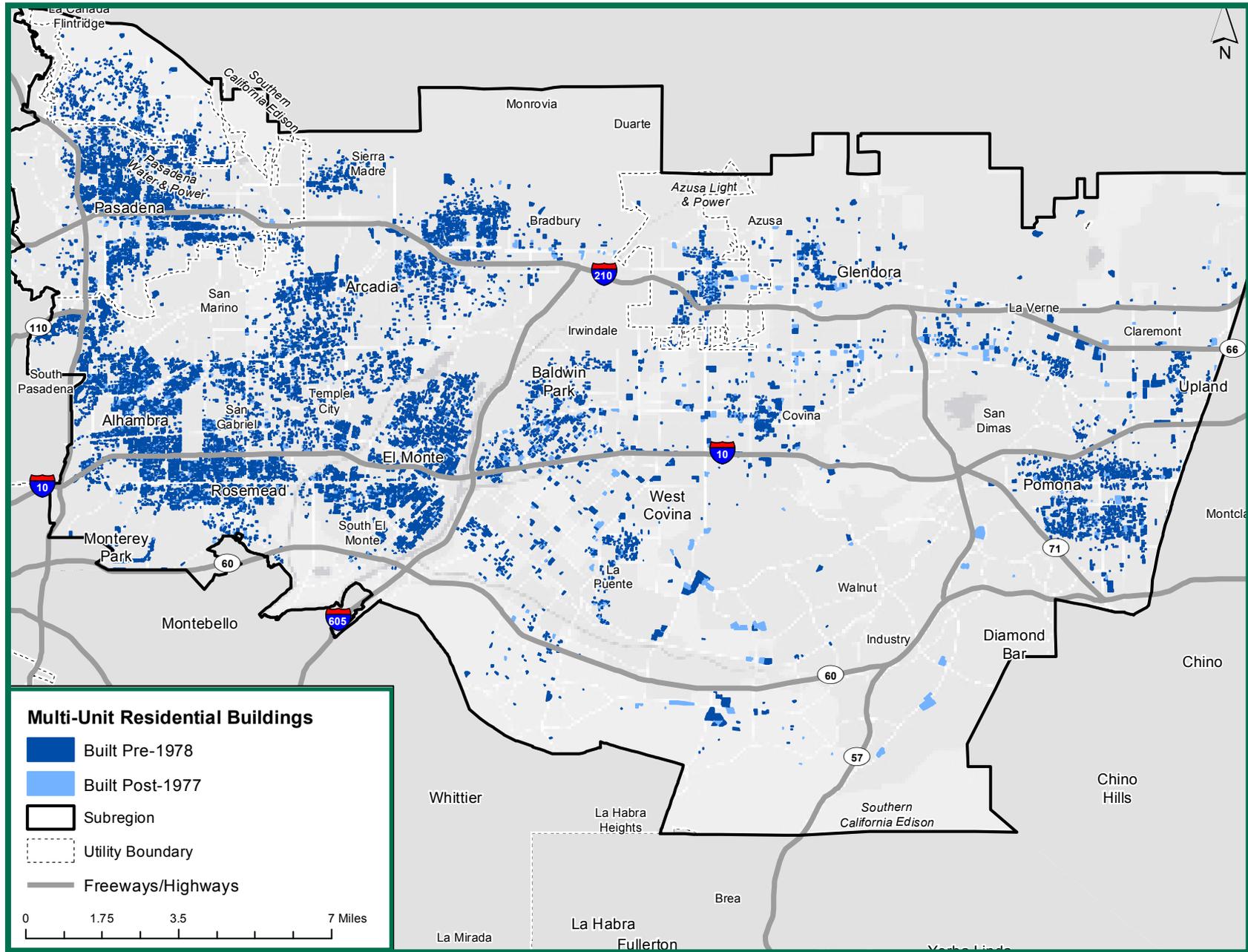
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Local policies also provide financial incentives for energy efficiency investments in multi-unit residential buildings. The previous narrative page describes residential incentives offered through Energy Upgrade California™ and other utility programs. Additional incentives include:

- Southern California Gas Company—
Offers a multi-family residential energy program that provides rebates for energy efficiency upgrades to property managers and owners of multi-unit residences.
- Southern California Edison—
Offers Multi-family Residential Energy Efficiency Programs that provide incentives for lighting, HVAC, fans, window insulation and more.
- Pasadena Water and Power—
Small business/multi-unit housing owners can receive free installation of water and energy efficiency products.
- Azusa Light and Power—
Offers a Low-income Assistance Program that provides credit up to one month's bill worth for qualifying customers.

ENERGY EFFICIENCY POTENTIAL: MULTI-UNIT RESIDENTIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

SAN GABRIEL VALLEY: ENERGY EFFICIENCY POTENTIAL: COMMERCIAL AND INDUSTRIAL BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for commercial and industrial buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for the San Gabriel Valley in the statistics table, below.

30%
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**Retrofitting
buildings to be
energy efficient
saves money and
creates jobs.**

		Commercial and Industrial Buildings in the San Gabriel Valley		All Buildings in the San Gabriel Valley	
MAP STATISTICS	# of commercial and industrial buildings	17,396	# of total buildings	300,991	
	% built before 1978	65%	% built before 1978	80%	
	Average square footage of pre-1978 buildings	13,617	Average square footage of pre-1978 buildings	3,625	
	% built in or after 1978	35%	% built in or after 1978	20%	
	Average square footage of post-1978 buildings	24,397	Average square footage post-1978 buildings	6,216	

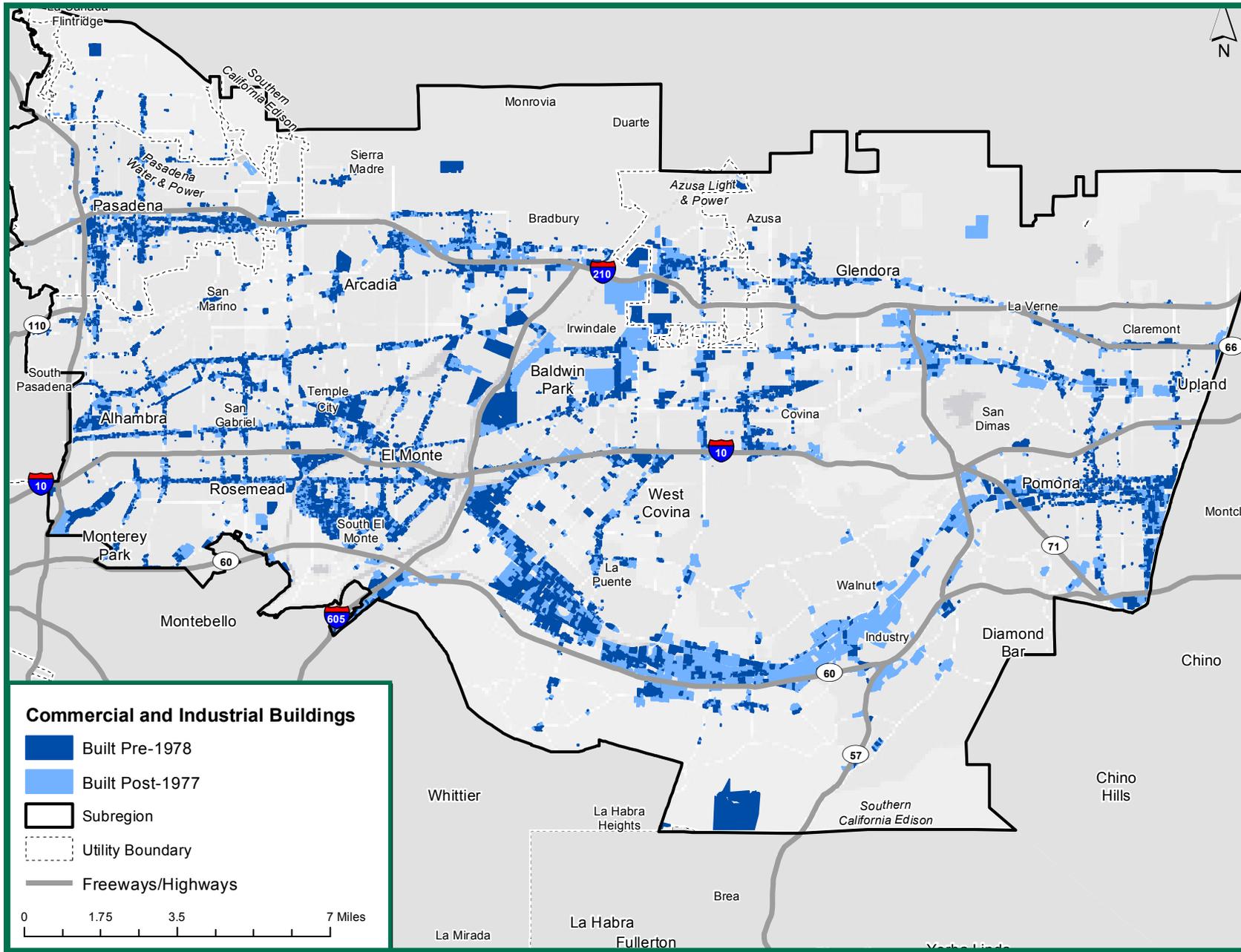
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Local policies also provide financial incentives for energy efficiency investments in businesses, including:

- Southern California Gas Company—
Offers a range of services including: Energy Efficiency Calculated Incentive Program and Energy Efficiency Rebates for Business Program.
- Southern California Edison—
Programs offered include: Demand Response, Energy Efficiency Customized Solutions, and Energy Efficiency Express Solutions.
- Pasadena Water and Power—
Offers incentives to commercial customers for permanent retrofit projects through the Energy Efficiency Partnering Program.
- Azusa Light and Power—
Offers rebates for installing high efficiency equipment through the Commercial and Industrial Energy Partnership Program.

ENERGY EFFICIENCY POTENTIAL: COMMERCIAL AND INDUSTRIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

SAN GABRIEL VALLEY: ENERGY EFFICIENCY POTENTIAL: GOVERNMENT AND NON-PROFIT BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for government and non-profit owned buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for the San Gabriel Valley in the statistics table, below.

**Billions
of \$**
are on the table
for energy
efficiency and
clean energy
investments in
California.

		Government and Non-profit Buildings in the San Gabriel Valley		All Buildings in the San Gabriel Valley	
MAP STATISTICS	# of government and non-profit buildings	1,606	# of total buildings	300,991	
	% built before 1978	83%	% built before 1978	80%	
	Average square footage of pre-1978 buildings	24,489	Average square footage of pre-1978 buildings	3,625	
	% built in or after 1978	17%	% built in or after 1978	20%	
	Average square footage of post-1978 buildings	35,757	Average square footage post-1978 buildings	6,216	

FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The San Gabriel Valley could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would taxpayers' money while supporting local green jobs and reducing pollution.

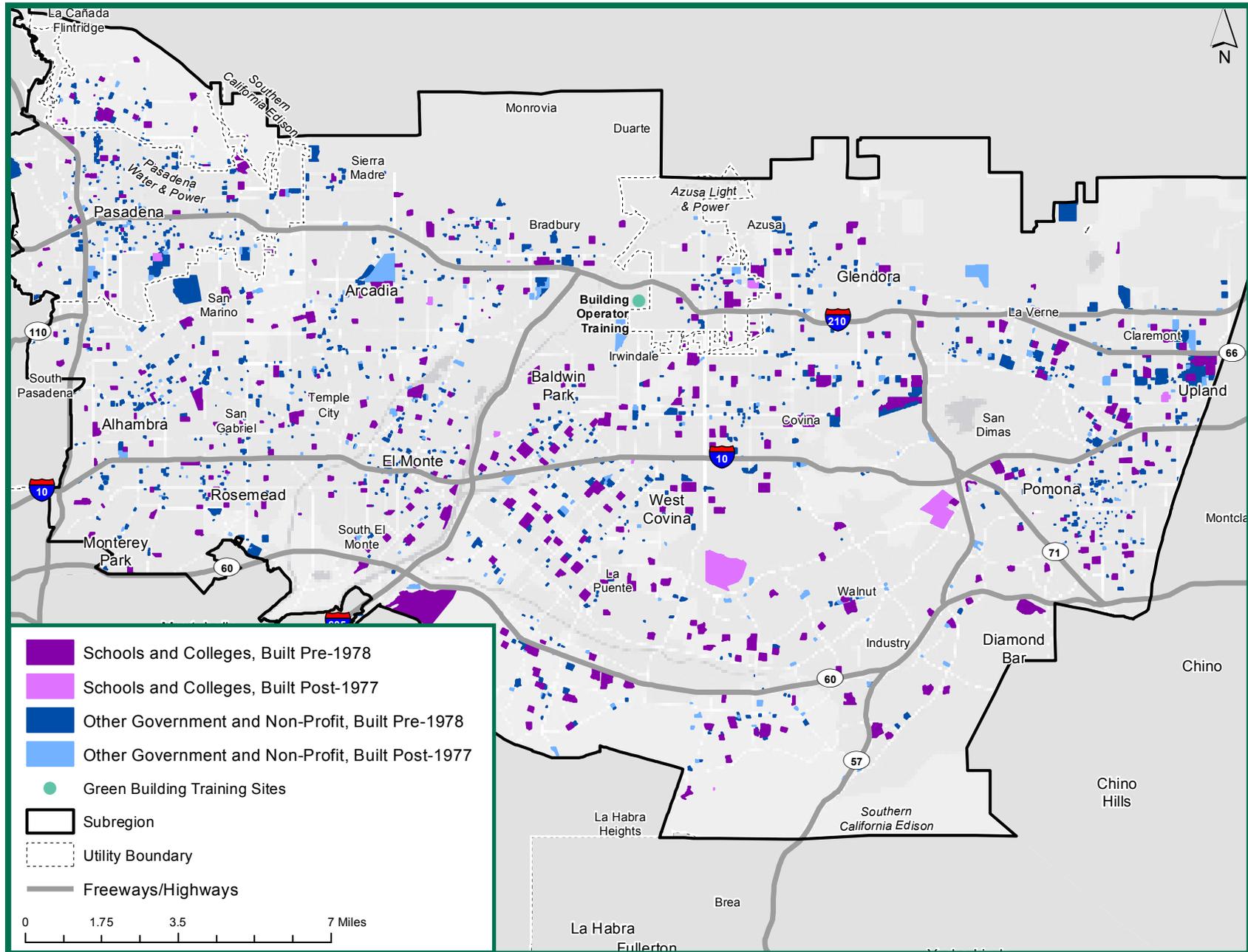
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Schools are pulled out because schools will be prime recipients of Proposition 39 funds. As the map indicates, numerous schools were constructed pre-1978, before energy efficiency building codes were in effect.

Green job training sites will also be supported by Proposition 39 funds. The map identifies green buildings training sites that could be eligible for these funds.



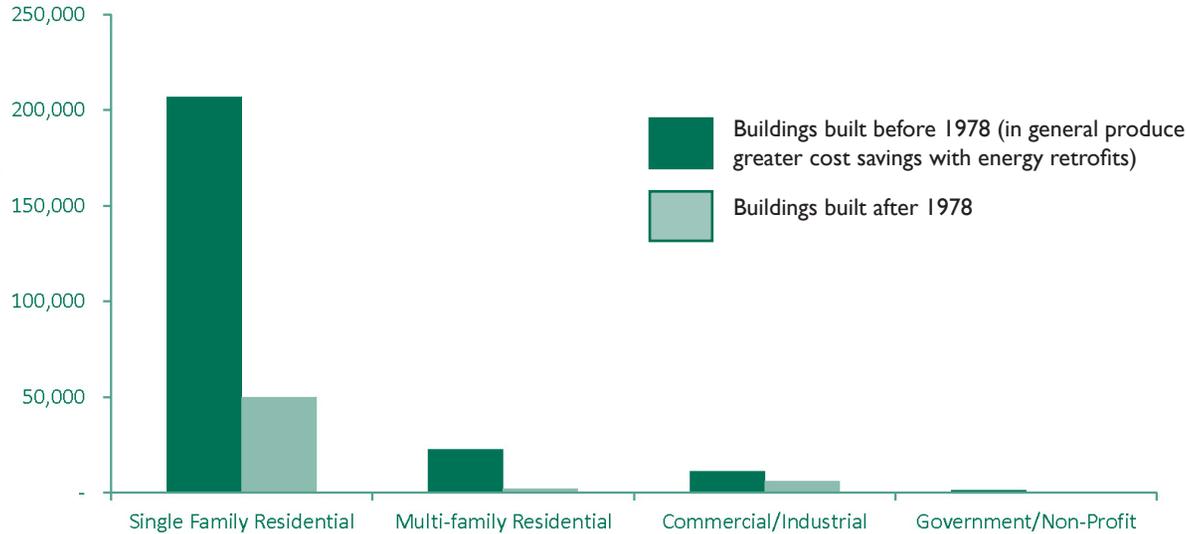
ENERGY EFFICIENCY POTENTIAL: GOVERNMENT AND NON-PROFIT



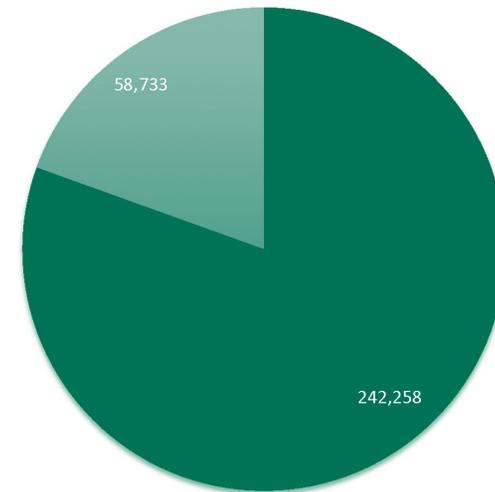
Source: Building age data: Los Angeles County Assessor; Schools: Extracted from Points of Interest (LMS Data) from LA County GIS Portal; Green building training site data: USC Program for Environmental and Regional Equity. Original data from Environment California Research and Policy Center, 2011. "Building a Clean Energy Workforce: Preparing Californians for New Opportunities in the State's Green Economy."

SAN GABRIEL VALLEY: ENERGY EFFICIENCY POTENTIAL SUMMARY

NUMBER OF BUILDINGS BY SECTOR



ALL BUILDINGS IN THE SAN GABRIEL VALLEY

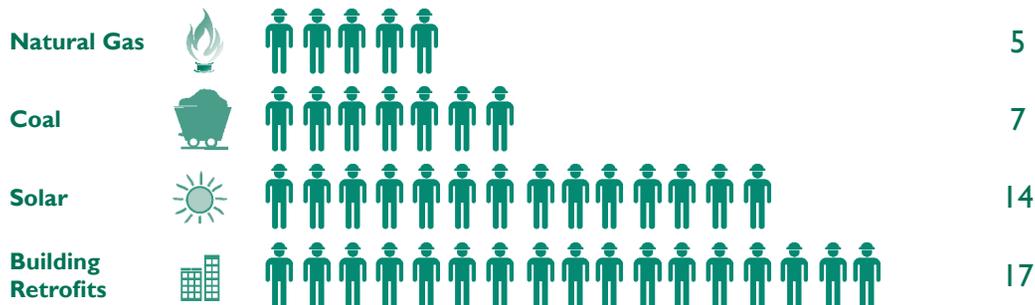


LINKING INVESTMENTS IN WORKFORCE TRAINING TO SUSTAINABLE JOBS

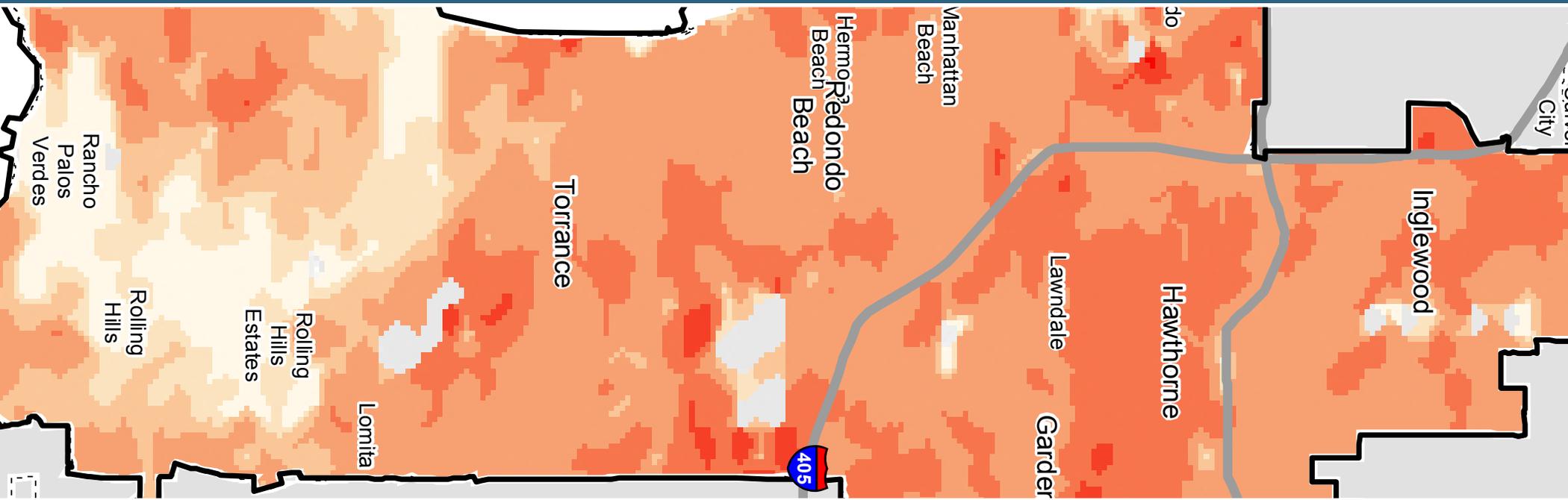
“Sustainable jobs” pay prevailing wages and provide healthcare and access to opportunities for wage growth.²³ To effectively link Proposition 39’s funding for worker training with sustainable jobs, policymakers should consider best practices for a strong pipeline between training programs and careers. For example, the Los Angeles Community College District, the Los Angeles Unified School District and the City of Los Angeles have approved project labor/stabilization agreements, or contracts with labor unions, that include goals for local hires and apprentices workers. Apprenticeship programs can create a strong pipeline between education and sustainable jobs and careers.

THE TRUTH ABOUT JOB CREATION

Energy efficiency investments create costs savings for the customer and jobs for the region. Invest \$1 million in the following industries, you get this many jobs.²⁴



PROFILE OF CLEAN ENERGY INVESTMENT POTENTIAL SOUTH BAY CITIES



SOUTH BAY CITIES: VULNERABILITY TO CLIMATE CHANGE



The map can inform spatially-targeted strategies to reduce health risks from climate change.

Knowing what communities are vulnerable to climate change, as identified in the map and table below, enables policymakers to identify strategies to reduce risk and improve community resiliency. Climate change will increase health issues in many communities.

This map illustrates the extent of vulnerability to climate change in the communities (at the census tract level) of the South Bay Cities. The data comes from the California Environmental Health Tracking Program (CEHTP) of the California Department of Public Health, which created an index of 7 indicators.¹³ These indicators, of climate change impacts and a community’s adaptive capacity, included:

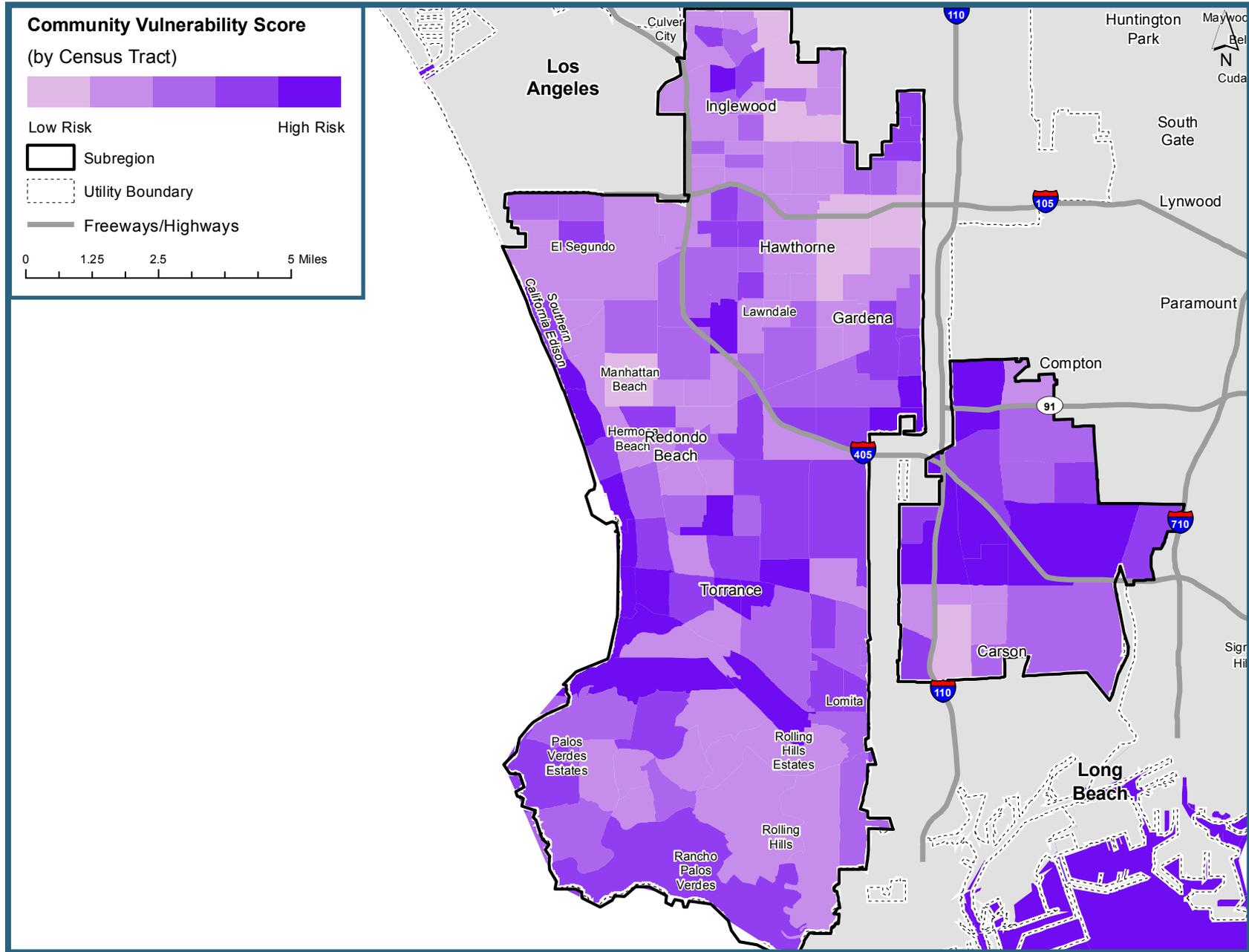
- Air conditioning (AC) ownership;
- Land cover characteristics (tree canopy and impervious surfaces);
- Access to transportation (transit and household car access);
- Social vulnerabilities (elderly living alone);
- Flood risk;
- Wildfire risk; and
- Sea level rise.

Note that the index does not include temperature predication data under climate change. Temperature predictions under climate change are shown in the Mid-Mentury Warming in the LA Region map.

Community Vulnerability to Climate Change in the South Bay Cities			
Zip code(s) for which the census tract (in parentheses) falls within		Level*	Scores (on a scale of 1-3.788 with 3.788 being the most vulnerable)
90745	(06037543801)	Top tier	3.556
90293, 90245, and 90045	(06037278000)	Top tier	3.375
90293, 90245, and 90045	(06037278000)	Top tier	3.375
90293, 90245, and 90045	(06037278000)	Top tier	3.375
90277	(06037621202)	Top tier	3.375
90745	(06037543802)	Top tier	3.333
90505	(06037651102)	Top tier	3.333
90745 and 90248	(06037543501)	Top tier	3.222
90745 and 90248	(06037543501)	Top tier	3.222
90732	(06037297400)	Top tier	3.222

*Relative to other census tracts in California

VULNERABILITY TO CLIMATE CHANGE



Source: California Environmental Health Tracking Program, August 2011. "Community Vulnerabilities to Climate Change." Environmental Health Investigations Branch, California Department of Public Health. Final report available at www.cehtp.org/p/climate_population_vulnerabilities.

SOUTH BAY CITIES: ENVIRONMENTAL HEALTH RISK



The map will inform the investment plan for the Greenhouse Gas Reduction Fund.

This map illustrates the screening tool that the State of California developed to identify communities disproportionately burdened by and vulnerable to multiple sources of pollution. Called the California Communities Environmental Health Screening Tool 2.0 (CalEnviroTool 2.0), it generates environmental health risk scores and rankings for every census tract in the state, incorporating data from 19 indicators within two categories: 1) pollution burden, exposure and environmental effect indicators; and 2) population characteristics, sensitive populations and socioeconomic factor indicators.¹⁴ High rankings indicate relatively high vulnerability.

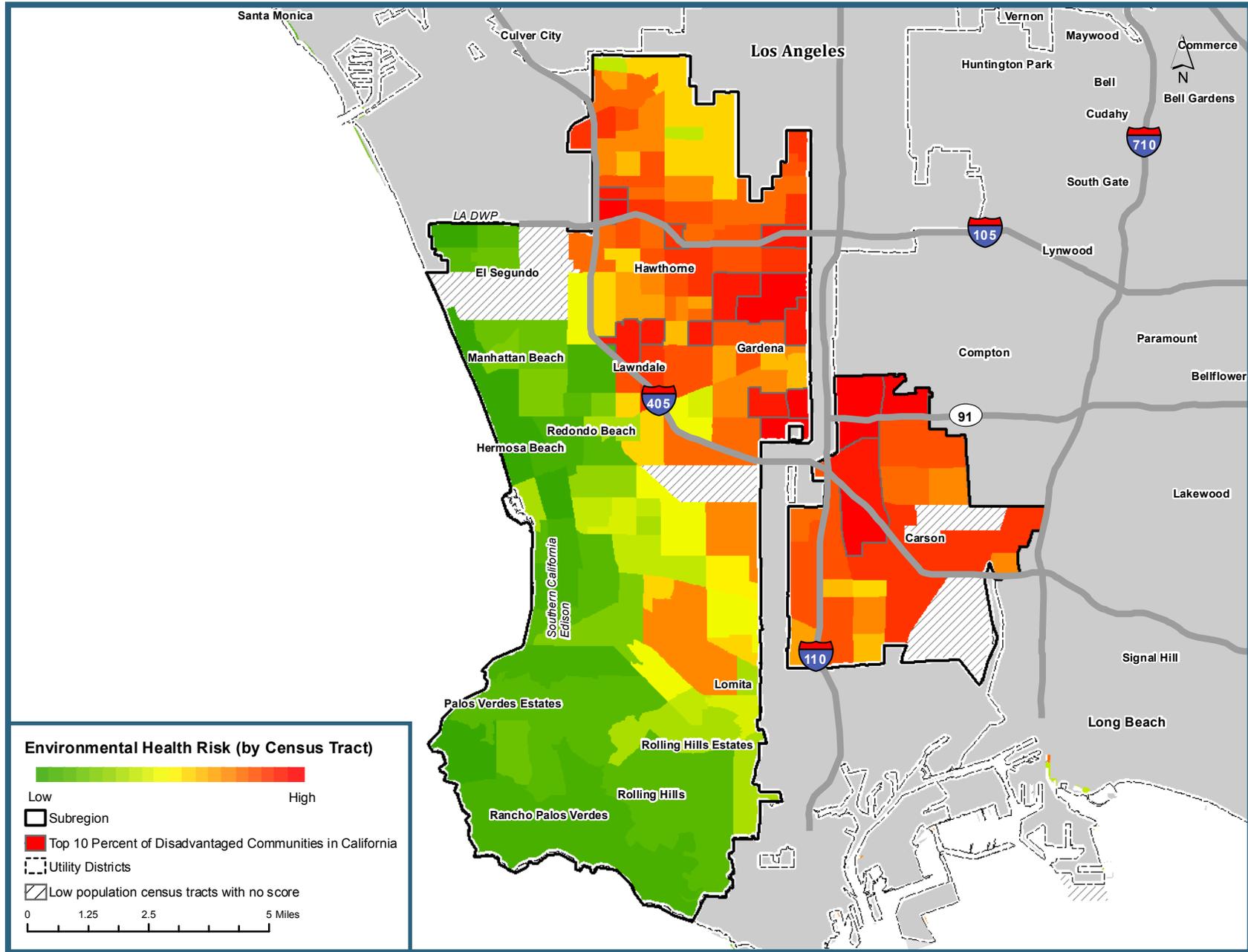
CalEnviroScreen will inform the State's identification of disadvantaged communities pursuant to **Senate Bill 535** (SB 535). SB 535 requires that at least 25 percent of monies from the **Greenhouse Gas Reduction Fund** be directed to projects that benefit disadvantaged communities and at least 10 percent of program funding expended will be directed to projects located in disadvantaged communities. With revenue from the State's cap-and-trade program, the Greenhouse Gas Reduction Fund is expected to soon generate billions of dollars every year for projects that reduce greenhouse gas emissions, create jobs and other co-benefits.

It is expected that communities with environmental risk scores in the top 20 percent will be prioritized for funding under the Greenhouse Gas Reduction Fund. To be conservative, however, the following map outlines with light grey lines communities with environmental risks scores in the top 10 percent. This map and others in the series, can help decision-makers and community members think strategically about where and what to invest in, to reduce pollution, expand clean energy generation, and create jobs.

Results from the California Communities Environmental Health Screening Tool: Highest Scores for the South Bay Cities				
Zip code(s) for which the census tract (in parentheses) falls within		Tier*	Percentile rank*	Score
90248 and 90746	(6037541002)	Top Tier	96-100%	48.15
90247	(6037603102)	Top Tier	96-100%	47.40
90745	(6037543801)	Top Tier	96-100%	46.34
90304	(6037601600)	Top Tier	96-100%	44.87
90248	(6037603200)	Top Tier	96-100%	43.14
90247 and 90249	(6037602900)	Top Tier	96-100%	42.93
90247	(6037603001)	2nd Tier	91-95%	42.55
90044 and 90047	(6037602801)	2nd Tier	91-95%	42.13
90304	(6037601502)	2nd Tier	91-95%	41.21
90250 and 90260	(6037603801)	2nd Tier	91-95%	41.12

*Compared to other census tracts in California

ENVIRONMENTAL HEALTH RISK



Source: California Environmental Protection Agency and the Office of Environmental Health Hazard Assessment, California Communities Environmental Health Screening Tool Version 2.0 (2014). <http://oehha.ca.gov/ej/ces2.html>. The highest scoring census tracts are identified as disadvantaged communities and are delineated with a grey border and red color.



SOUTH BAY CITIES: SOLAR CAPACITY

The South Bay Cities is endowed with both bountiful sunshine and numerous buildings that offer valuable siting opportunities for solar energy generation. This map identifies the rooftop solar opportunities across neighborhoods in the South Bay Cities.¹⁶ Economic development planners, building owners and anyone interested in expanding solar power can use this map, along other parcel level analyses,¹⁷ to identify potential investment opportunities.¹⁸ Because cost-effectiveness increases with the size of a solar installation, the map statistics table presents the number of potential solar projects by size and the total rooftop potential.

2,482
job years could be created if 5% of rooftop solar potential in South Bay Cities was realized.¹⁹

MAP STATISTICS	Single Family	78%	Total Rooftop Solar Potential	1,986 megawatts
	Multi-unit Residential	15%	Total Potential Sites	152,292 rooftops
	Commercial & Industrial	6%	Median Rooftop Availability	550 sq. ft.
	Government & Non-profit	<1%	Median Potential of Available Parcels	5.28 kilowatts

Jobs: If just 5% of total rooftop solar potential in the South Bay Cities was realized, approximately 2,482 job years would be created.¹⁹

Pollution Reduction: This would also eliminate 105,898 metric tons of carbon dioxide pollution each year.²⁰

FUNDING OPPORTUNITIES

State policies that expand opportunities for solar include the potentially billions of dollars from Proposition 39's Clean Energy Job Creation Fund as well as the AB 32 Greenhouse Gas Reduction Fund (cap-and-trade auction proceeds). In order for the South Bay Cities to benefit, policymakers will have to be vigilant to ensure that residents, businesses and schools have access to these opportunities.

Job training will also be supported by Proposition 39. The map identifies solar job training sites that could be eligible for these resources.

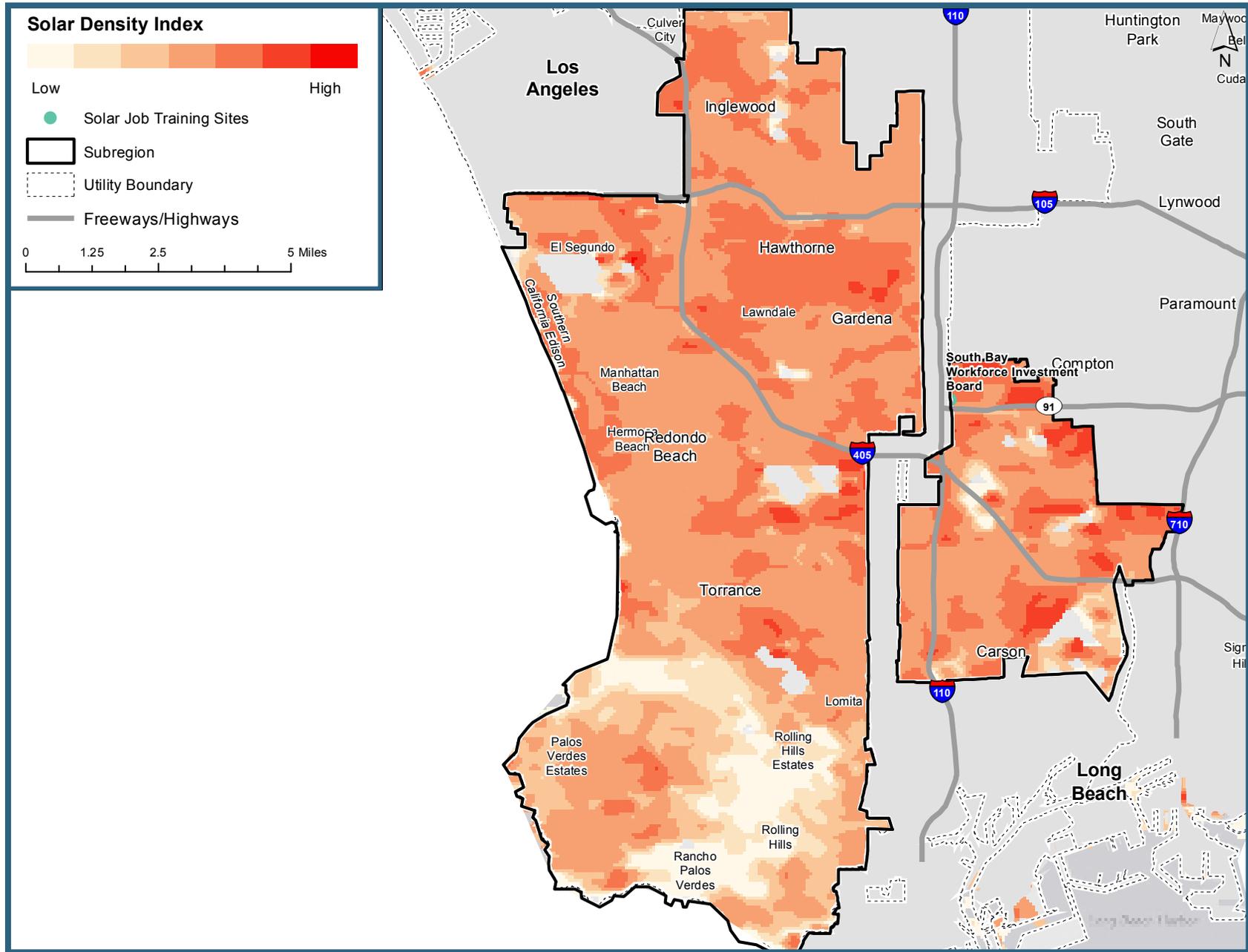
Local policies also provide financial incentives for solar investments. Through the California Solar Initiative, Southern California Edison offers incentives including rebates on solar equipment and installation such as photovoltaics and solar heating systems. Residential and commercial customers could also be eligible for Net Energy Metering, which gives property owners credit for the electricity generated by the solar system on their rooftop.



Parcels with the Largest Potential Solar Projects in the South Bay Cities

Rank	Potential (kW)	Parcel Address	Zip Code	Parcel Use Description
1	6,202	19700 Van Ness Ave; Torrance	90501	Warehousing, Distribution, Storage
2	5,081	700 Van Ness Ave; Torrance	90501	Office Buildings
3	4,911	19001 S Western Ave; Torrance	90501	Office Buildings
4	4,734	2201 E Carson St; Carson	90810	Warehousing, Distribution, Storage
5	4,301	2417 E Carson St; Carson	90810	Warehousing, Distribution, Storage

SOLAR CAPACITY



Source: Original solar capacity data: Los Angeles County, "Los Angeles County Solar Map." solarmap.lacounty.gov. Data modified by UCLA for the "Los Angeles County Solar Atlas," 2011, from which the above map was created. innovation.luskin.ucla.edu. Solar training sites data: USC Program for Environmental and Regional Equity, 2011. "Empowering LA's Solar Workforce." Sponsored by the Los Angeles Business Council. Original data from Environment California Research and Policy Center, 2011. "Building a Clean Energy Workforce: Preparing Californians for New Opportunities in the State's Green Economy."

SOUTH BAY CITIES: ENERGY EFFICIENCY POTENTIAL: RESIDENTIAL BUILDINGS/HOMES



86% of homes in South Bay Cities were built before the state's energy efficiency building codes.

Simple retrofits can save money and make the home more comfortable year round.

The map highlights neighborhoods where potential for energy efficiency investments might be greatest for residential homes.²¹ Buildings constructed before 1978 in general produce greater cost savings when retrofitted than buildings built after 1978.²² The potential for energy efficiency investments is summarized for the South Bay Cities in the map statistics table.

MAP STATISTICS	Residential Buildings in the South Bay Cities		All Buildings in the South Bay Cities	
	# of single-family homes	119,501	# of total buildings in the South Bay	152,262
	% built before 1978	86%	% built before 1978	86%
	Average square footage of pre-1978 buildings	2,290	Average square footage of pre-1978 buildings	3,347
	% built in or after 1978	14%	% built in or after 1978	14%
	Average square footage of post-1978 buildings	3,890	Average square footage post-1978 buildings	6,883

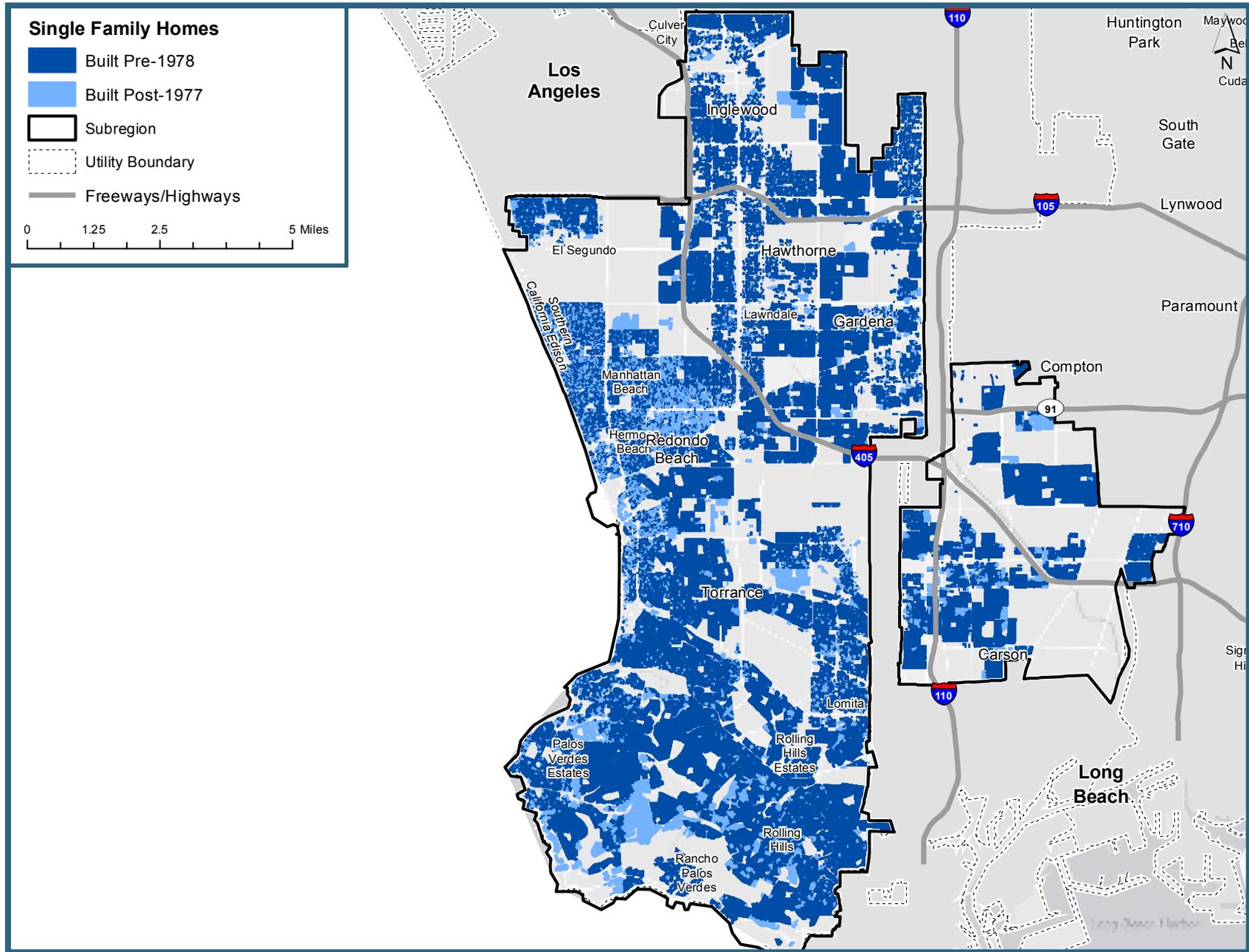
FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The South Bay Cities could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would help consumers save money on their electricity bills, support local green jobs and reduce pollution.

Local policies provide financial incentives to homeowners for energy efficiency investments. Through Energy Upgrade California™, incentives of up to \$4,500 are available to residential customers of Southern California Edison (SCE) and the Southern California Gas Company (SoCal Gas). Other programs include:

- Residential Energy Efficiency Rebate Program—
SCE provides residential incentives for a wide range of energy efficiency upgrades, including up to \$1,100 to help with A/C installation, maintenance and repair as well as refrigerator recycling, ENERGY STAR™ refrigerator rebates, pool pump and motor rebates, the More Light for Less program, whole house fan rebates, evaporative cooler rebates, water heater rebates, and clothes washer rebates.
- Home Energy Efficiency Rebate Program—
SoCal Gas provides rebates to residential customers for energy efficiency upgrades with ENERGY STAR™ equipment.
- California Advanced Homes Incentives—
Incentives for home construction that performs at least 15% better than Title 24 Standards.

ENERGY EFFICIENCY POTENTIAL: RESIDENTIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

SOUTH BAY CITIES: ENERGY EFFICIENCY POTENTIAL: MULTI-UNIT RESIDENTIAL BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for multi-unit residential buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for the South Bay Cities in the map statistics table.

92% of apartments and other multi-unit residential buildings in South Bay Cities were built before the state's energy efficiency building codes.

The cheapest energy is the energy not used in the first place.

		Multi-unit Residential Buildings in the South Bay Cities		All Buildings in the South Bay Cities	
MAP STATISTICS	# of multi-unit residential buildings	23,058	# of total buildings in the South Bay	152,262	
	% built before 1978	92%	% built before 1978	86%	
	Average square footage of pre-1978 buildings	4,273	Average square footage of pre-1978 buildings	3,347	
	% built in or after 1978	8%	% built in or after 1978	14%	
	Average square footage of post-1978 buildings	5,990	Average square footage post-1978 buildings	6,883	

FUNDING OPPORTUNITIES

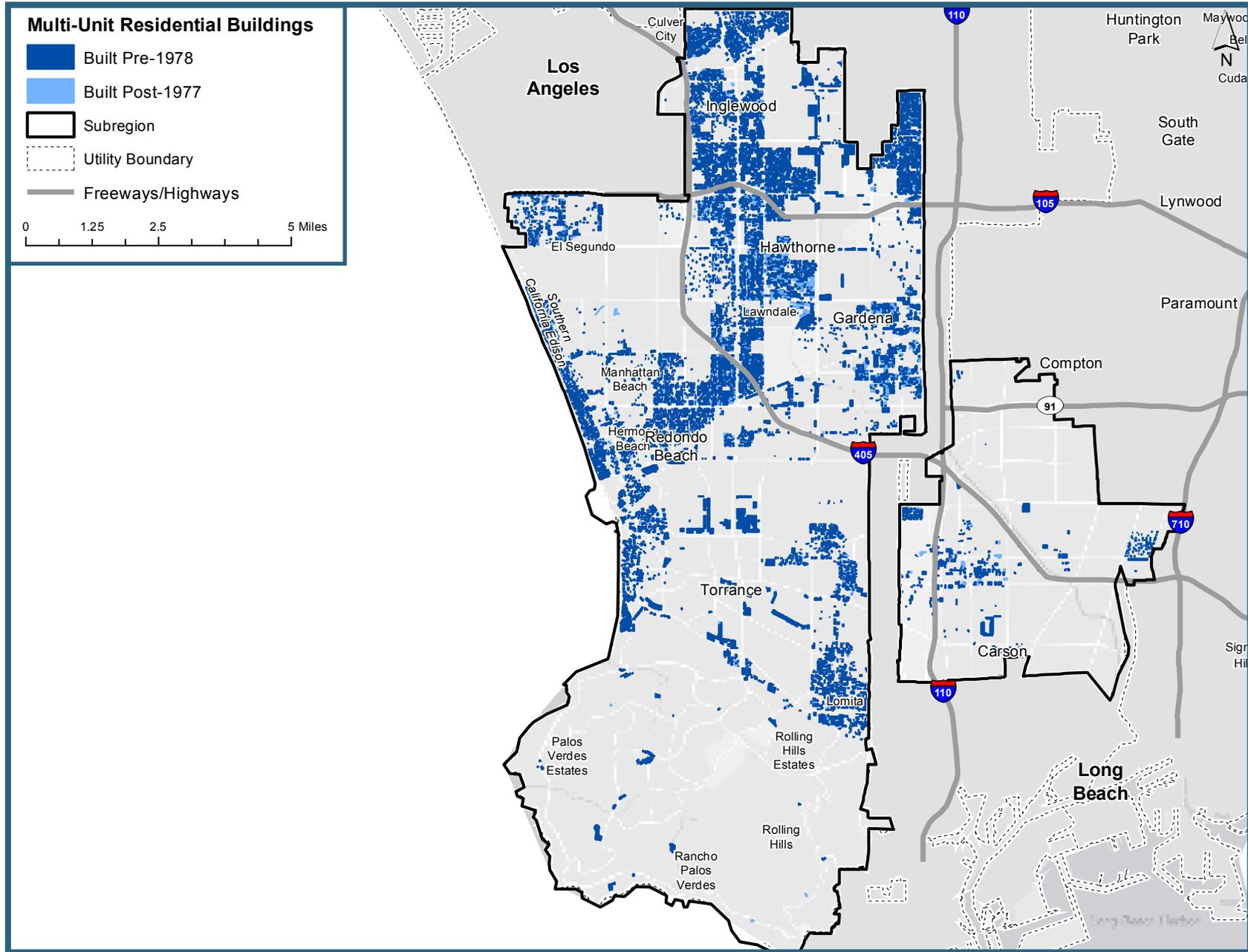
State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. South Bay Cities could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would help consumers and property owners save money on their electricity bills, support local green jobs and reduce pollution.

Local policies also provide financial incentives for energy efficiency investments in multi-unit residential buildings. The previous narrative page describes residential incentive programs offered by Southern California Edison (SCE) and the Southern California Gas Company (SoCal Gas).

In addition, SCE offers a multi-family residential energy program that provides rebates for energy efficiency upgrades to property managers and owners of multi-unit residences.

SoCal Gas also offers a multi-family residential energy program that provides rebates for energy efficiency investments made by property managers and owners of multi-unit residences.

ENERGY EFFICIENCY POTENTIAL: MULTI-UNIT RESIDENTIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

SOUTH BAY CITIES: ENERGY EFFICIENCY POTENTIAL: COMMERCIAL AND INDUSTRIAL BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for commercial and industrial buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for the South Bay Cities in the statistics table, below.

30%
on average of
the energy used
in commercial
buildings is wasted,
according to the
U.S. Environmental
Protection Agency.

**Retrofitting
buildings to be
energy efficient
saves money and
creates jobs.**

		Commercial and Industrial Buildings in the South Bay Cities		All Buildings in the South Bay Cities	
MAP STATISTICS	# of commercial and industrial buildings	9,043	# of total buildings in the South Bay Cities	152,262	
	% built before 1978	74%	% built before 1978	86%	
	Average square footage of pre-1978 buildings	15,593	Average square footage of pre-1978 buildings	3,347	
	% built in or after 1978	26%	% built in or after 1978	14%	
	Average square footage of post-1978 buildings	28,239	Average square footage post-1978 buildings	6,883	

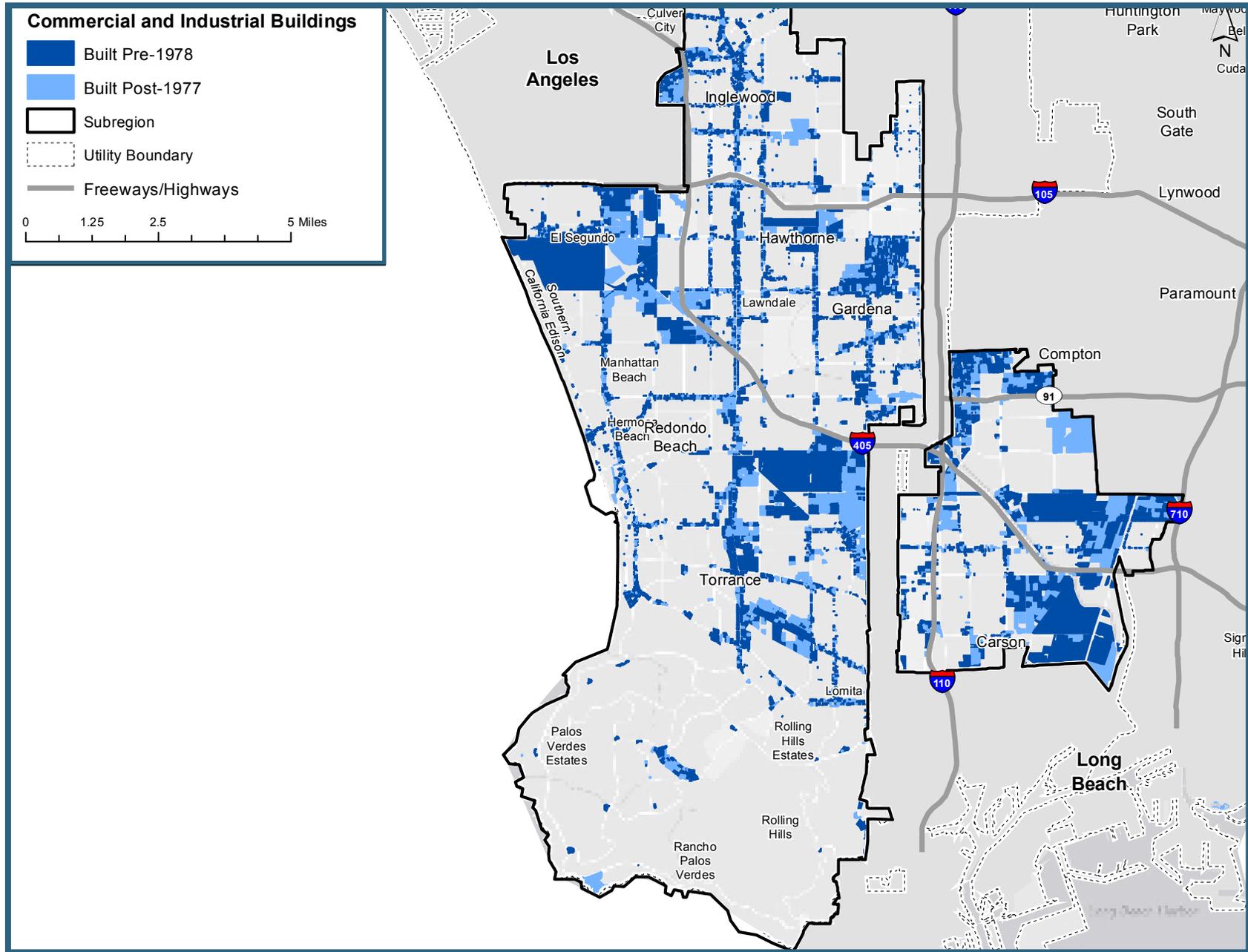
FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The South Bay Cities could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would help businesses save money on their electricity bills, support local green jobs and reduce pollution.

Local policies also provide financial incentives for energy efficiency investments. Southern California Edison (SCE) offers a range of programs for industrial and commercial customers, including:

- **Demand Response Program**—
Helps commercial customers save money by reducing energy use during peak demand times.
- **Energy Efficiency Express Solutions**—
Provides rebates paid up to 100% on energy upgrades for lighting, temperature control, refrigerators and water heaters.
- **Savings by Design Program**—
SCE partners with the Southern California Gas Company (SoCal Gas) on the Savings by Design program that provides technical expertise and rebates to commercial and industrial customers to reduce energy usage.
- Other SCE and SoCal Gas services include energy efficiency customized solutions, an energy efficiency calculated incentive program, and a non-residential on-bill financing program.

ENERGY EFFICIENCY POTENTIAL: COMMERCIAL AND INDUSTRIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

SOUTH BAY CITIES: ENERGY EFFICIENCY POTENTIAL: GOVERNMENT AND NON-PROFIT BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for government and non-profit owned buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for the South Bay Cities in the statistics table, below.

**Billions
of \$**
are on the table
for energy
efficiency and
clean energy
investments in
California.

		Government and Non-profit Buildings in the South Bay Cities		All Buildings in the South Bay Cities	
MAP STATISTICS	# of government and non-profit buildings	660	# of total buildings in the South Bay	152,262	
	% built before 1978	87%	% built before 1978	86%	
	Average square footage of pre-1978 buildings	16,213	Average square footage of pre-1978 buildings	3,347	
	% built in or after 1978	13%	% built in or after 1978	14%	
	Average square footage of post-1978 buildings	17,077	Average square footage post-1978 buildings	6,883	

FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The South Bay Cities could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would save taxpayers' money while supporting local green jobs and reducing pollution.

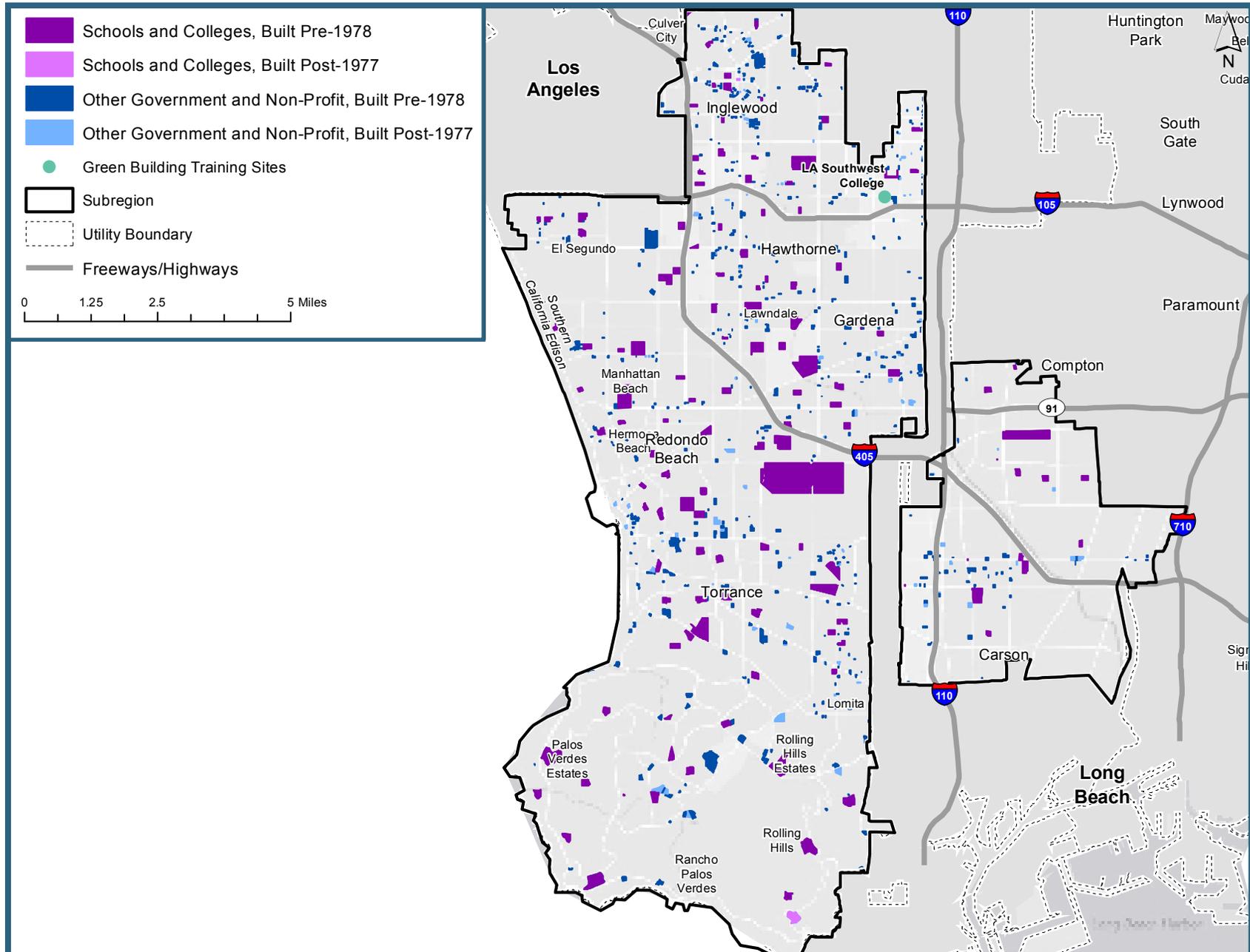
Municipal buildings will be eligible recipients for Proposition 39 funds. The map identifies the municipal buildings constructed before 1978, an indication of likely cost effectiveness for a retrofit.

Schools are pulled out because schools will be prime recipients of Proposition 39 funds. As the map indicates, numerous schools were constructed pre-1978, before energy efficiency building codes were in effect.

Green job training sites will also be supported by Proposition 39 funds. The map identifies green buildings training sites that could be eligible for these funds.



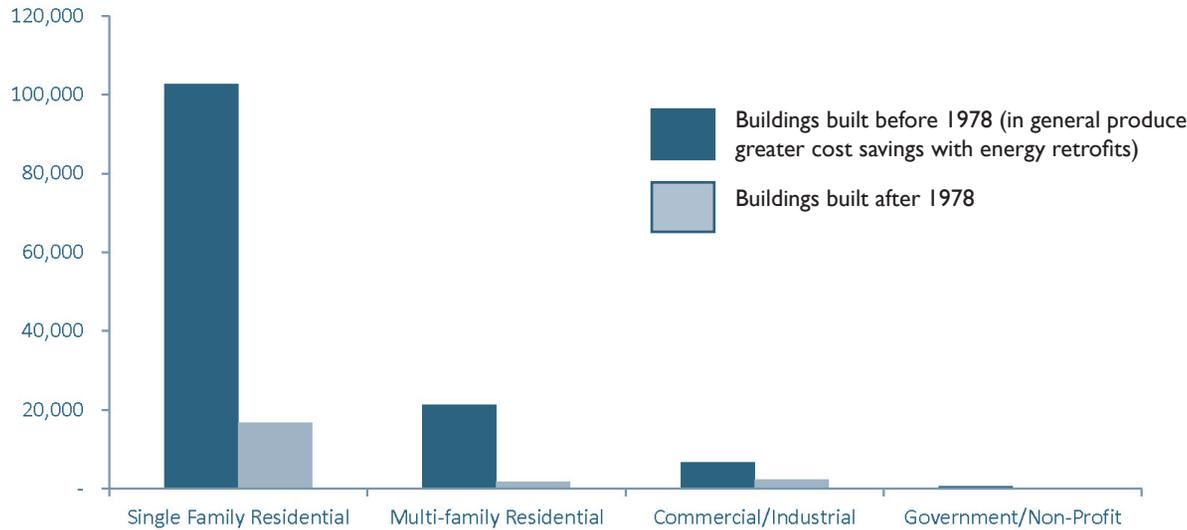
ENERGY EFFICIENCY POTENTIAL: GOVERNMENT AND NON-PROFIT



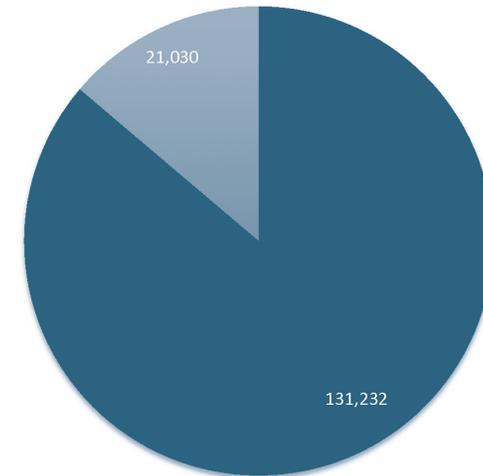
Source: Building age data: Los Angeles County Assessor; Schools: Extracted from Points of Interest (LMS Data) from LA County GIS Portal; Green building training site data: USC Program for Environmental and Regional Equity. Original data from Environment California Research and Policy Center, 2011. "Building a Clean Energy Workforce: Preparing Californians for New Opportunities in the State's Green Economy."

SOUTH BAY CITIES: ENERGY EFFICIENCY POTENTIAL SUMMARY

NUMBER OF BUILDINGS BY SECTOR



ALL BUILDINGS IN THE SOUTH BAY CITIES

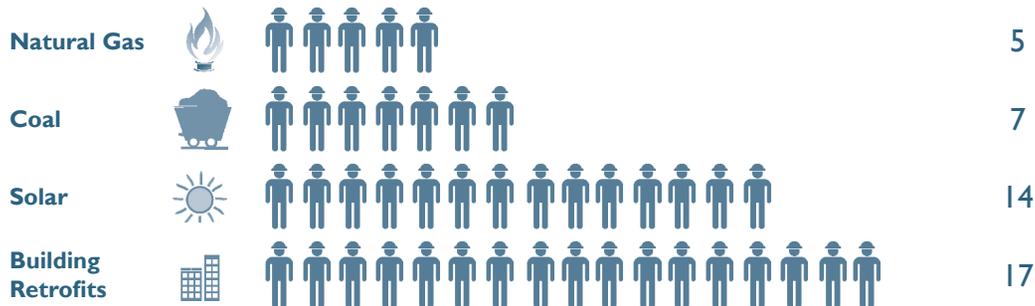


LINKING INVESTMENTS IN WORKFORCE TRAINING TO SUSTAINABLE JOBS

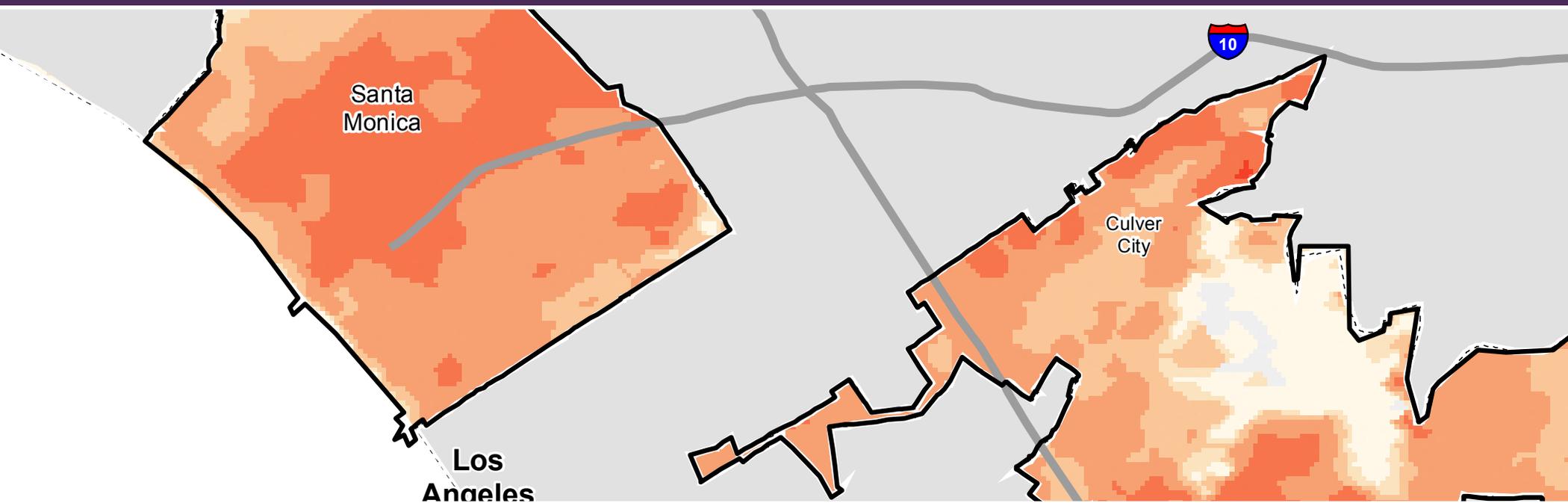
“Sustainable jobs” pay prevailing wages and provide healthcare and access to opportunities for wage growth.²³ To effectively link Proposition 39’s funding for worker training with sustainable jobs, policymakers should consider best practices for a strong pipeline between training programs and careers. For example, the Los Angeles Community College District and the City of Los Angeles have approved project labor/stabilization agreements, or contracts with labor unions, that include goals for local hires and apprentices workers. Apprenticeship programs can create a strong pipeline between education and sustainable jobs and careers.

THE TRUTH ABOUT JOB CREATION

Energy efficiency investments create costs savings for the customer and jobs for the region. Invest \$1 million in the following industries, you get this many jobs.²⁴



PROFILE OF CLEAN ENERGY INVESTMENT POTENTIAL WESTSIDE CITIES



WESTSIDE CITIES: VULNERABILITY TO CLIMATE CHANGE



The map can inform spatially-targeted strategies to reduce health risks from climate change.

Knowing what communities are vulnerable to climate change, as identified in the map and table below, enables policymakers to identify strategies to reduce risk and improve community resiliency. Climate change will increase health issues in many communities.

This map illustrates the extent of vulnerability to climate change in the communities (at the census tract level) of the Westside Cities. The data comes from the California Environmental Health Tracking Program (CEHTP) of the California Department of Public Health, which created an index of 7 indicators.¹³ These indicators, of climate change impacts and a community's adaptive capacity, included:

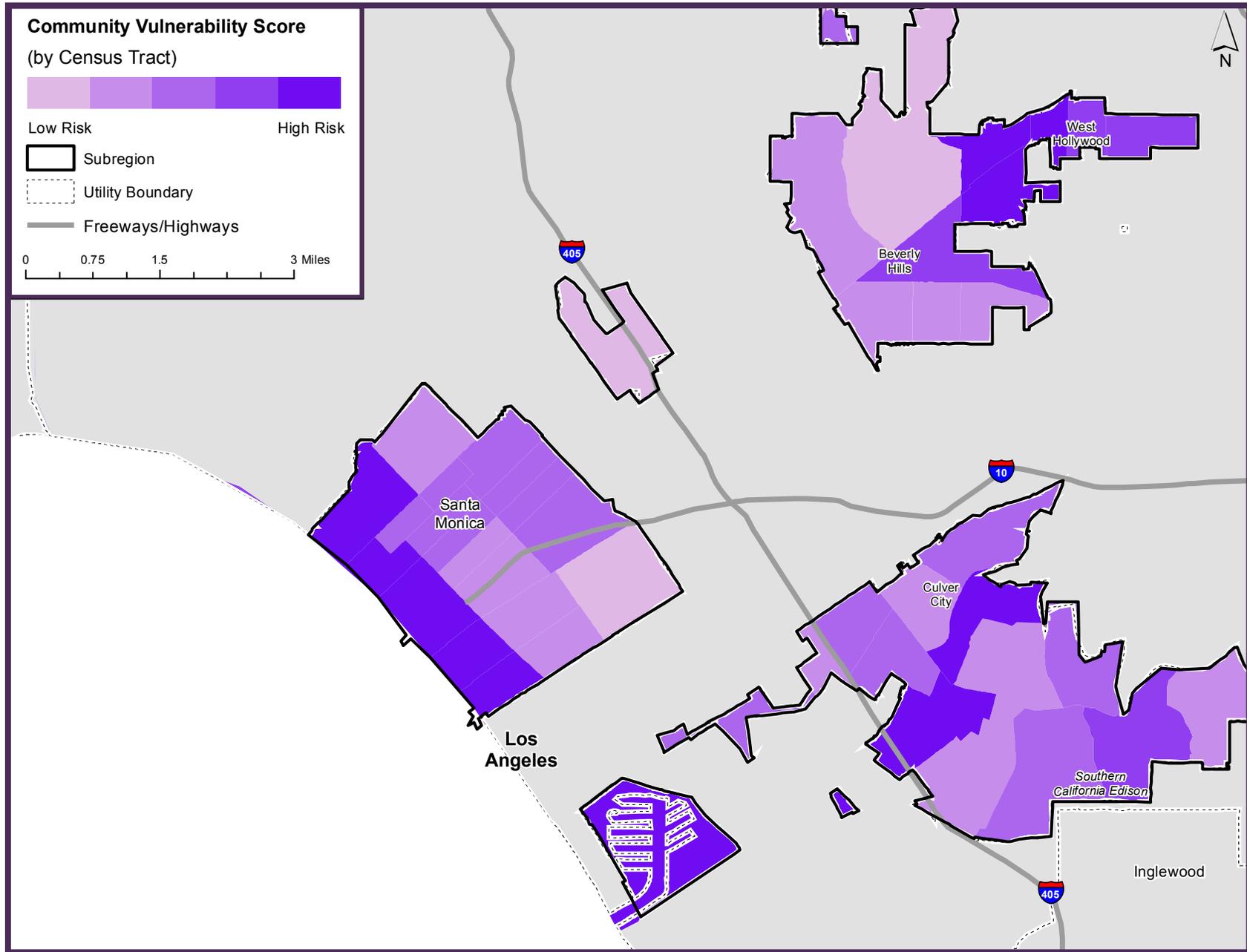
- Air conditioning (AC) ownership;
- Land cover characteristics (tree canopy and impervious surfaces);
- Access to transportation (transit and household car access);
- Social vulnerabilities (elderly living alone);
- Flood risk;
- Wildfire risk; and
- Sea level rise.

Note that the index does not include temperature predication data under climate change. Temperature predictions under climate change are shown in the Mid-Mentury Warming in the LA Region map.

Community Vulnerability to Climate Change in the Westside Cities			
Zip code(s) for which the census tract (in parentheses) falls within		Level*	Scores (on a scale of 1-3.788 with 3.788 being the most vulnerable)
90403	(06037701400)	Top tier	3.750
90404 and 90401	(06037701900)	Top tier	3.750
90404 and 90401	(06037701900)	Top tier	3.750
90094, 90066, and 90230	(06037275601)	Top tier	3.750
90094, 90066, and 90230	(06037275601)	Top tier	3.750
90094, 90066, and 90230	(06037275601)	Top tier	3.750
90292	(06037274200)	Top tier	3.500
90291	(06037273400)	Top tier	3.375
90016 and 90232	(06037220100)	Top tier	3.333
90016 and 90232	(06037220100)	Top tier	3.333

*Relative to other census tracts in California

VULNERABILITY TO CLIMATE CHANGE



Source: California Environmental Health Tracking Program, August 2011. "Community Vulnerabilities to Climate Change." Environmental Health Investigations Branch, California Department of Public Health. Final report available at www.cehtp.org/p/climate_population_vulnerabilities.



The map will inform the investment plan for the Greenhouse Gas Reduction Fund.

WESTSIDE CITIES: ENVIRONMENTAL HEALTH RISK

This map illustrates the screening tool that the State of California developed to identify communities disproportionately burdened by and vulnerable to multiple sources of pollution. Called the California Communities Environmental Health Screening Tool 2.0 (CalEnviroTool 2.0), it generates environmental health risk scores and rankings for every census tract in the state, incorporating data from 19 indicators within two categories: 1) pollution burden, exposure and environmental effect indicators; and 2) population characteristics, sensitive populations and socioeconomic factor indicators.¹⁴ High rankings indicate relatively high vulnerability.

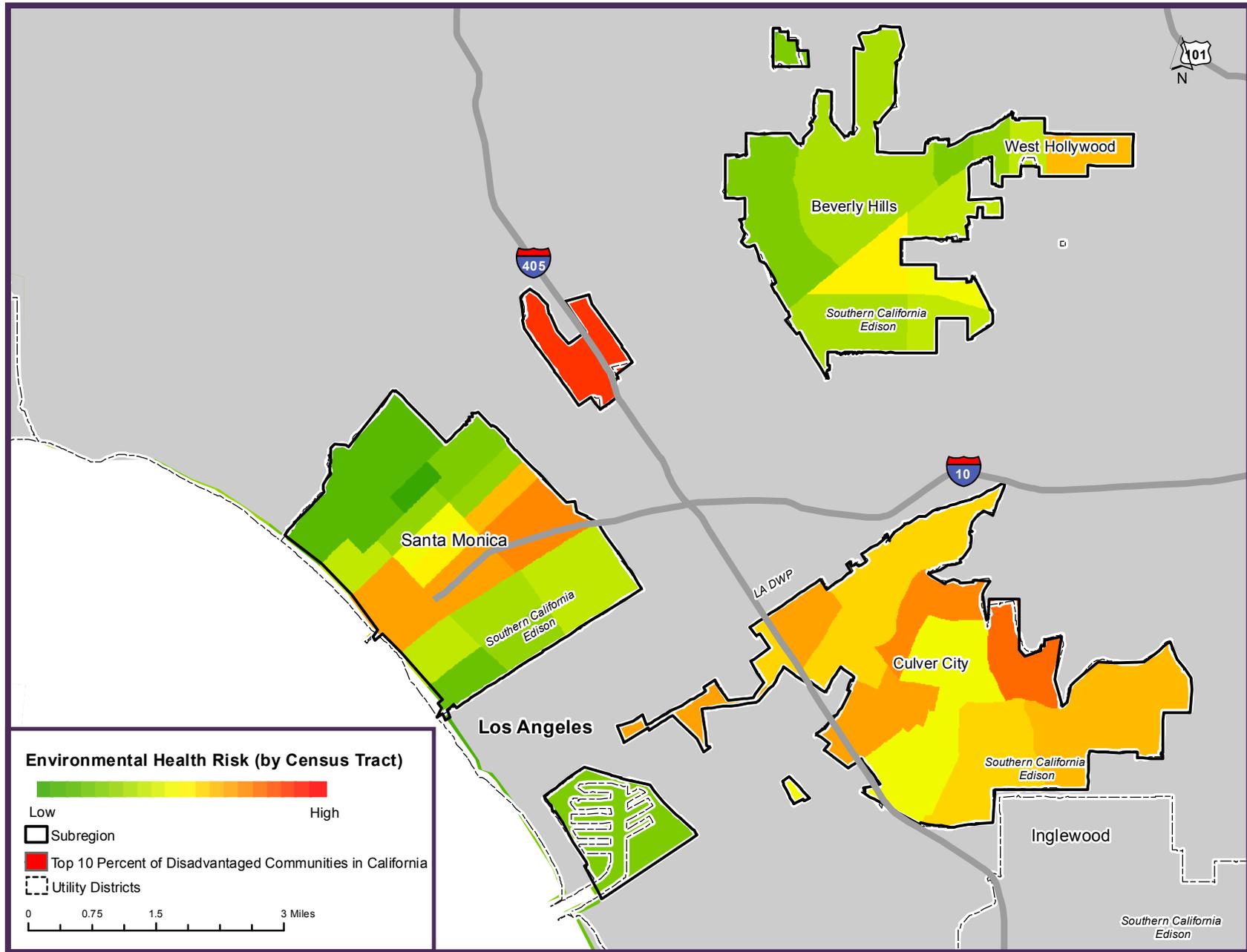
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It is expected that communities with environmental risk scores in the top 20 percent will be prioritized for funding under the Greenhouse Gas Reduction Fund. To be conservative, however, the following map outlines with light grey lines communities with environmental risks scores in the top 10 percent. This map and others in the series, can help decision-makers and community members think strategically about where and what to invest in, to reduce pollution, expand clean energy generation, and create jobs.

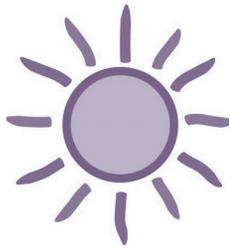
Results from the California Communities Environmental Health Screening Tool: Highest Scores for the Westside Cities				
Zip code(s) for which the census tract (in parentheses) falls within		Tier*	Percentile rank*	Score
90024, 90025, 90049 and 90073	(6037701100)	3rd Tier	86-90%	35.31
90404	(6037701801)	6th Tier	71-75%	27.33
90016, 90230 and 90232	(6037702502)	6th Tier	71-75%	26.61
90401 and 90404	(6037701902)	7th Tier	66-70%	26.18
90066 and 90292	(6037702803)	7th Tier	66-70%	26.03
90404	(6037701802)	7th Tier	66-70%	25.28
90230	(6037702600)	7th Tier	66-70%	25.20
90230 and 90232	(6037702801)	7th Tier	66-70%	24.46
90404	(6037701701)	8th Tier	61-65%	24.33
90038 and 90046	(6037700101)	8th Tier	61-65%	24.17

*Compared to other census tracts in California

ENVIRONMENTAL HEALTH RISK



Source: California Environmental Protection Agency and the Office of Environmental Health Hazard Assessment, California Communities Environmental Health Screening Tool Version 2.0 (2014). <http://oehha.ca.gov/ej/ces2.html>. The highest scoring census tracts are identified as disadvantaged communities and are delineated with a grey border and red color.



WESTSIDE CITIES: SOLAR CAPACITY

The Westside Cities is endowed with both bountiful sunshine and numerous buildings that offer valuable siting opportunities for solar energy generation. This map identifies the rooftop solar opportunities across neighborhoods in the Westside Cities.¹⁶ Economic development planners, building owners and anyone interested in expanding solar power can use this map, along other parcel level analyses,¹⁷ to identify potential investment opportunities.¹⁸ Because cost-effectiveness increases with the size of a solar installation, the map statistics table presents the number of potential solar projects by size and the total rooftop potential.

480

job years could be created if 5% of rooftop solar potential in Westside Cities was realized.¹⁹

MAP STATISTICS	Single Family	63%	Total Rooftop Solar Potential	384 megawatts
	Multi-unit Residential	25%	Total Potential Sites	30,482 rooftops
	Commercial & Industrial	12%	Median Rooftop Availability	575 sq. ft.
	Government & Non-profit	1%	Median Potential of Available Parcels	5.52 kilowatts

Jobs: If just 5% of total rooftop solar potential in the Westside Cities was realized, approximately 480 job years would be created.¹⁹

Pollution Reduction: This would also eliminate 20,456 metric tons of carbon dioxide pollution each year.²⁰

FUNDING OPPORTUNITIES

State policies that expand opportunities for solar include the potentially billions of dollars from Proposition 39's Clean Energy Job Creation Fund as well as the AB 32 Greenhouse Gas Reduction Fund (cap-and-trade auction proceeds). In order for the Westside Cities to benefit, policymakers will have to be vigilant to ensure that residents, businesses and schools have access to these opportunities.

Job training will also be supported by Proposition 39. The map identifies solar job training sites that could be eligible for these resources.

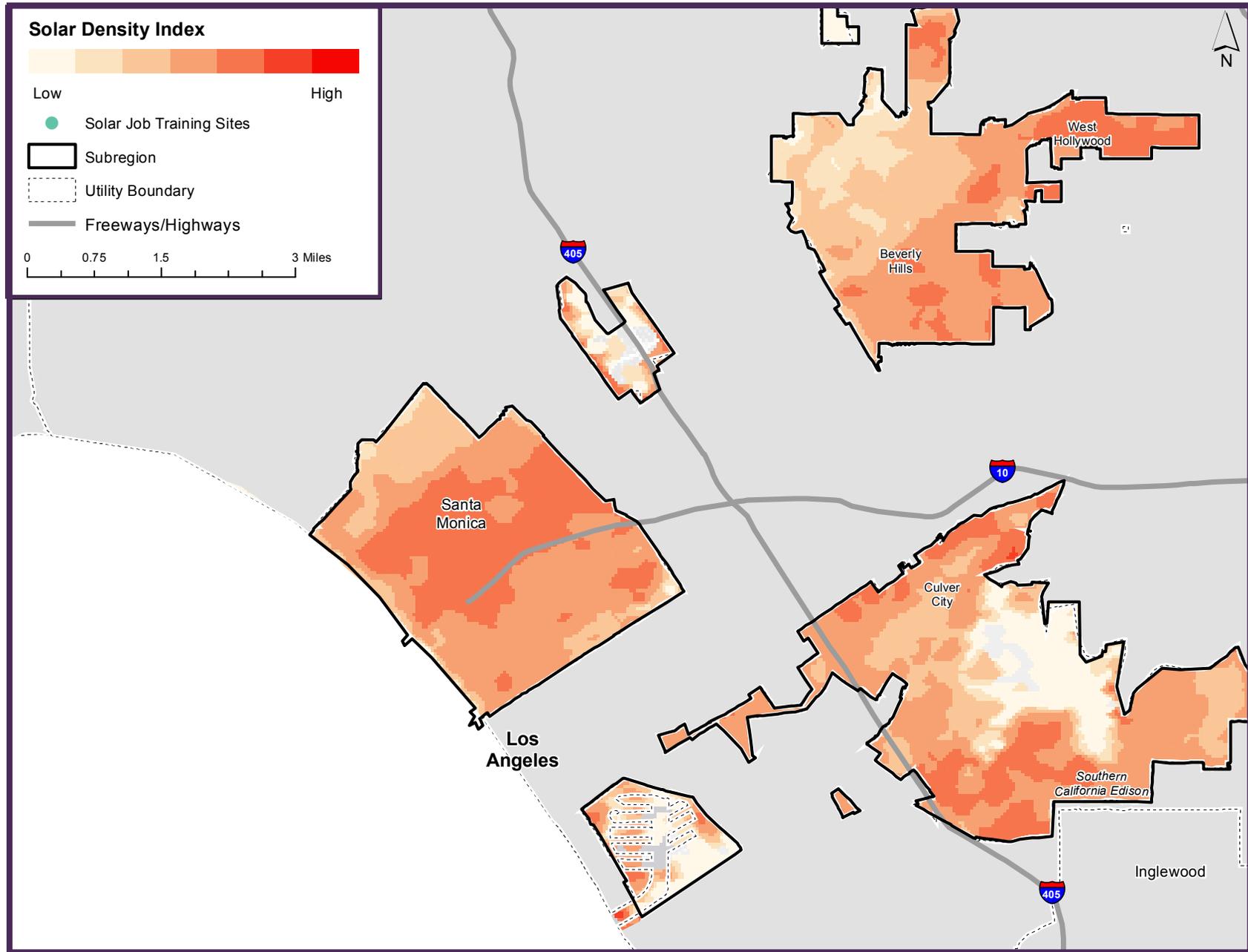
Local policies also provide financial incentives for solar investments. Southern California Edison offers incentives through the California Solar Initiative, including rebates on solar equipment and installation. Residential and commercial customers could also be eligible for net energy metering, which allows excess energy produced but not consumed by the property owner to result in a credit on their utility bill. The Los Angeles Department of Water and Power (LADWP) offers: 1) the Solar Incentive Program for net metering and 2) a Feed-in Tariff Program in which property owners can be paid for the solar produced on their building.



Parcels with the Largest Potential Solar Projects in the Westside Cities

Rank	Potential (kW)	Parcel Address	Zip Code	Parcel Use Description
1	3,336	4500 Via Marina; Unincorporated	90292	Five or more apartments
2	1,360	11046 Jefferson Blvd; Culver City	90230	Shopping Centers (Regional)
3	1,257	1681 26th St.; Santa Monica	90404	Heavy Manufacturing
4	1,200	9336 Washington Blvd; Culver City	90232	Motion Picture, Radio & Television
5	1,163	10824 Jefferson Blvd; Culver City	90230	Shopping Centers (Regional)

SOLAR CAPACITY



Source: Original solar capacity data: Los Angeles County, "Los Angeles County Solar Map." solarmap.lacounty.gov. Data modified by UCLA for the "Los Angeles County Solar Atlas," 2011, from which the above map was created. innovation.luskin.ucla.edu. Solar training sites data: USC Program for Environmental and Regional Equity, 2011. "Empowering LA's Solar Workforce." Sponsored by the Los Angeles Business Council. Original data from Environment California Research and Policy Center, 2011. "Building a Clean Energy Workforce: Preparing Californians for New Opportunities in the State's Green Economy."

WESTSIDE CITIES: ENERGY EFFICIENCY POTENTIAL: RESIDENTIAL BUILDINGS/HOMES



87% of homes in Westside Cities were built before the state's energy efficiency building codes.

Simple retrofits can save money and make the home more comfortable year round.

The map highlights neighborhoods where potential for energy efficiency investments might be greatest for residential homes.²¹ Buildings constructed before 1978 in general produce greater cost savings when retrofitted than buildings built after 1978.²² The potential for energy efficiency investments is summarized for the Westside Cities in the map statistics table.

		Residential Buildings in the Westside Cities		All Buildings in the Westside Cities	
MAP STATISTICS	# of single-family homes	19,128	# of total buildings	30,396	
	% built before 1978	87%	% built before 1978	89%	
	Average square footage of pre-1978 buildings	3,573	Average square footage of pre-1978 buildings	4,632	
	% built in or after 1978	13%	% built in or after 1978	11%	
	Average square footage of post-1978 buildings	5,489	Average square footage post-1978 buildings	8,063	

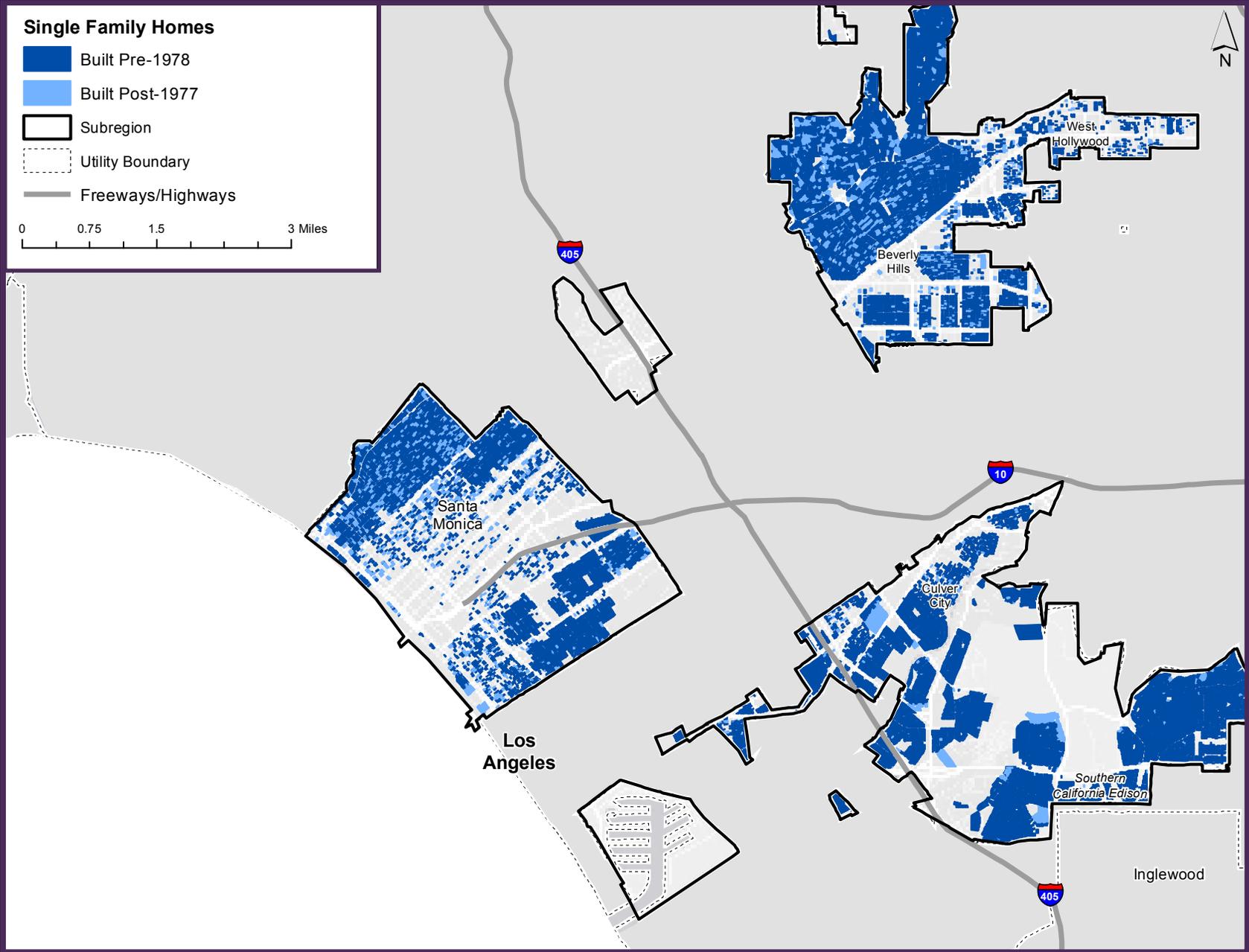
FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The Westside Cities could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would help consumers save money on their electricity bills, support local green jobs and reduce pollution.

Local policies provide financial incentives to homeowners for energy efficiency investments. Through Energy Upgrade California™, incentives of up to \$4,500 are available to customers of the Southern California Gas Company and Southern California Edison or the Los Angeles Department of Water and Power. The utilities also offer other rebate and recycling programs. For example:

- Southern California Gas Company— Provides rebates for energy efficient upgrades with ENERGY STAR™ equipment.
- Southern California Edison— Provides rebates for a wide range of energy efficiency upgrades, including up to \$1,100 to help with A/C installation, maintenance and repair.
- Los Angeles Department of Water and Power— Offers a Water Conservation Rebate Program, a Refrigerator Recycling Program, and the Home Energy Improvement Program, which helps homeowners identify the most appropriate and cost effective improvements for their home.

ENERGY EFFICIENCY POTENTIAL: RESIDENTIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

WESTSIDE CITIES: ENERGY EFFICIENCY POTENTIAL: MULTI-UNIT RESIDENTIAL BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for multi-unit residential buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for the Westside Cities in the map statistics table.

96% of apartments and other multi-unit residential buildings in the Westside Cities were built before the state's energy efficiency building codes.

The cheapest energy is the energy not used in the first place.

		Multi-unit Residential Buildings in the Westside Cities		All Buildings in the Westside Cities	
MAP STATISTICS	# of multi-unit residential buildings	7,514	# of total buildings in the Westside Cities	30,396	
	% built before 1978	96%	% built before 1978	89%	
	Average square footage of pre-1978 buildings	5,158	Average square footage of pre-1978 buildings	4,632	
	% built in or after 1978	4%	% built in or after 1978	11%	
	Average square footage of post-1978 buildings	7,351	Average square footage post-1978 buildings	8,063	

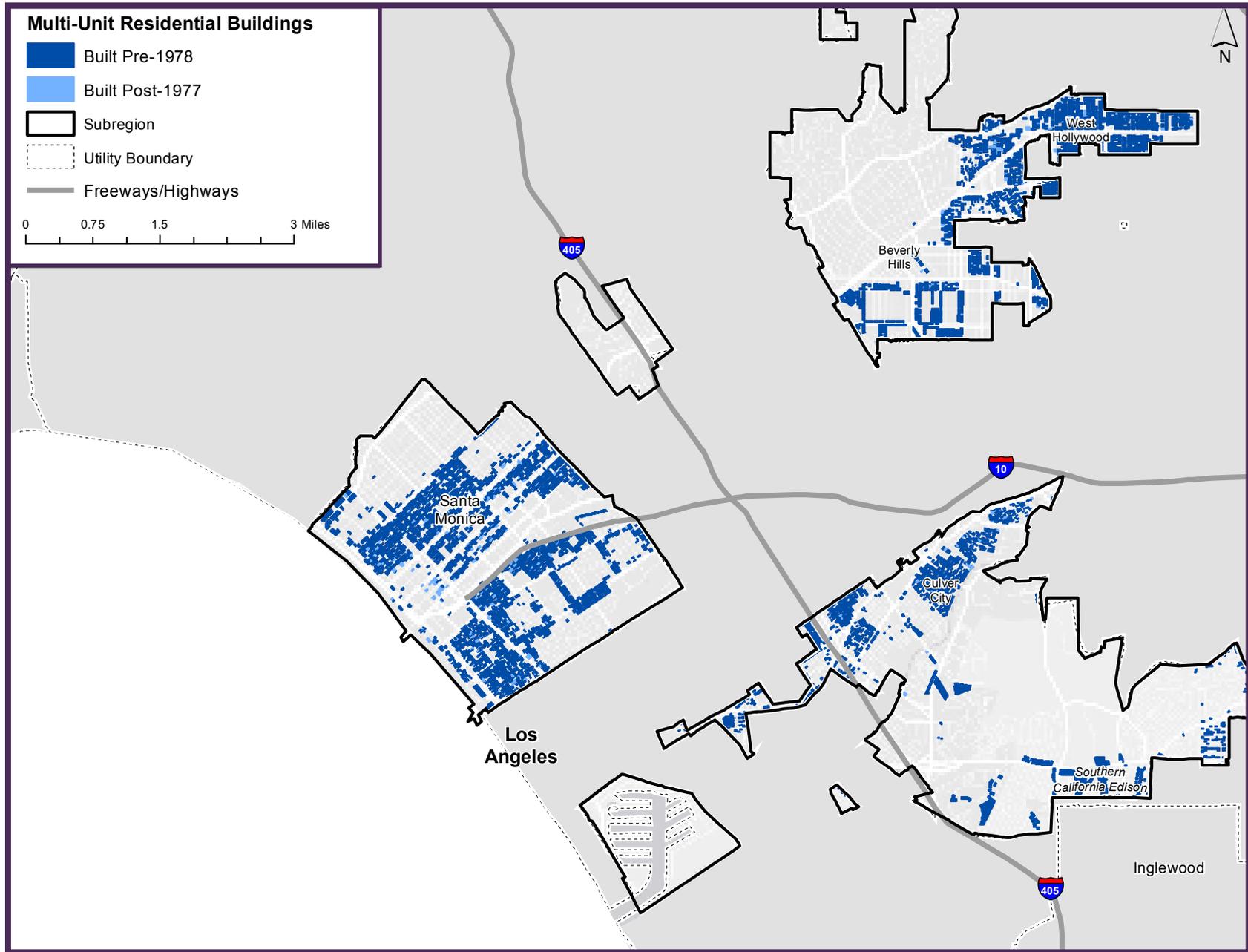
FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The Westside Cities could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would help consumers and property owners save money on their electricity bills, support local green jobs and reduce pollution.

Local policies also provide financial incentives for energy efficiency investments in multi-unit residential buildings. The previous narrative page describes residential incentive programs offered by local utilities. Additional programs include:

- Southern California Gas Company— Offers a Multi-family Residential Energy Program that provides rebates for energy efficiency upgrades to property managers and owners of multi-unit residences.
- Southern California Edison— Offers Multi-family Residential Energy Programs that provides rebates to property managers and owners of multi-unit residences for a wide range of energy efficiency upgrades. Rebates can be for lighting, HVAC systems, water heaters, window insulation and more.
- Los Angeles Department of Water and Power— Offers a Refrigerator Exchange program for low-income and senior citizen customers and a Technical Assistance Program that provides incentives to multi-unit residential property owners for water saving equipment.

ENERGY EFFICIENCY POTENTIAL: MULTI-UNIT RESIDENTIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

WESTSIDE CITIES: ENERGY EFFICIENCY POTENTIAL: COMMERCIAL AND INDUSTRIAL BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for commercial and industrial buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for the Westside Cities in the statistics table, below.

30%
on average of
the energy used
in commercial
buildings is wasted,
according to the
U.S. Environmental
Protection Agency.

**Retrofitting
buildings to be
energy efficient
saves money and
creates jobs.**

		Commercial and Industrial Buildings in the Westside Cities		All Buildings in the Westside Cities	
MAP STATISTICS	# of commercial and industrial buildings	3,538	# of total buildings	30,396	
	% built before 1978	82%	% built before 1978	89%	
	Average square footage of pre-1978 buildings	8,869	Average square footage of pre-1978 buildings	4,632	
	% built in or after 1978	18%	% built in or after 1978	11%	
	Average square footage of post-1978 buildings	17,968	Average square footage post-1978 buildings	8,063	

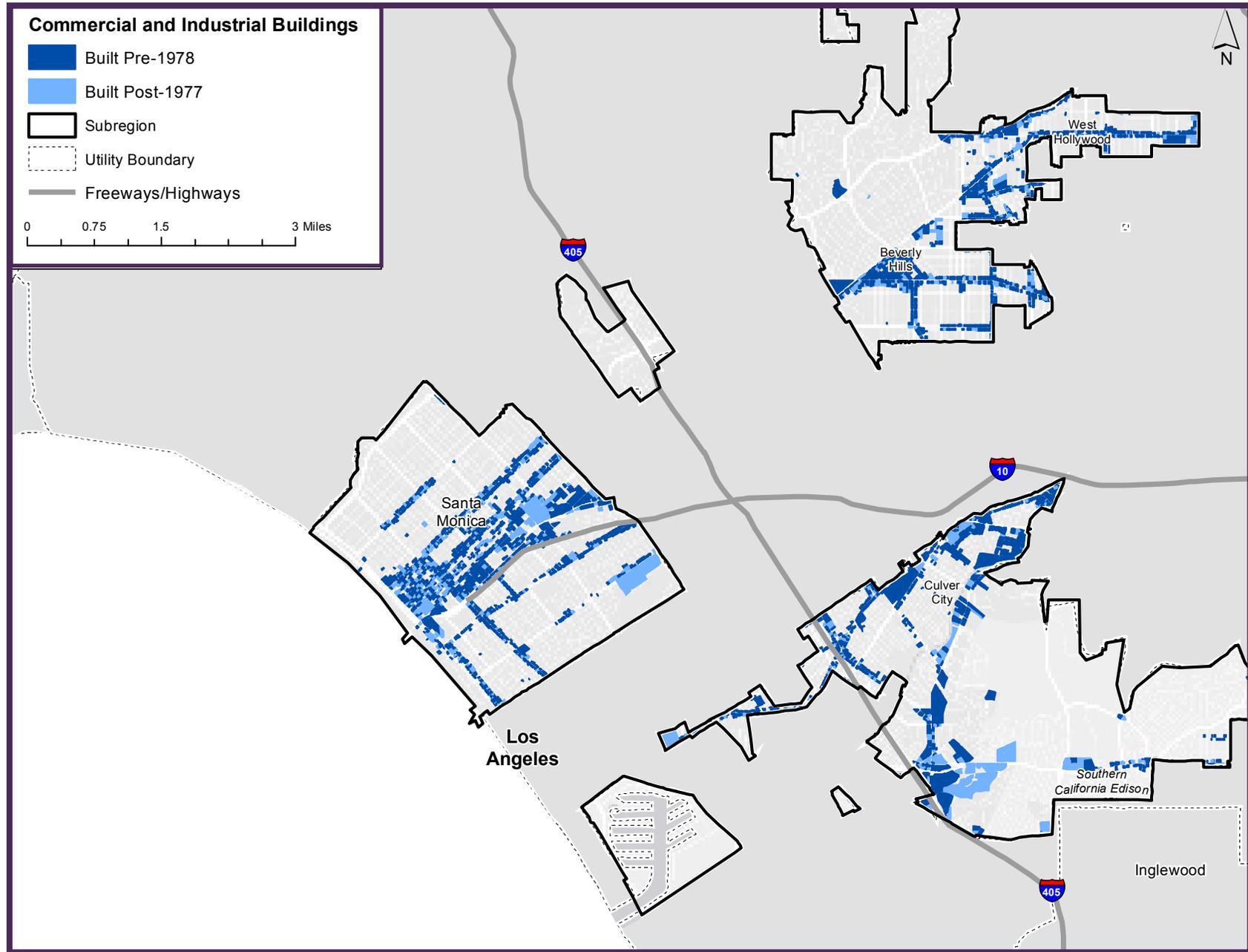
FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The Westside Cities could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would help businesses save money on their electricity bills, support local green jobs and reduce pollution.

Local policies also provide financial incentives to commercial and industrial customers of local utilities for energy efficiency investments.

- Los Angeles Department of Water and Power—
Offers the following programs for industrial and commercial customers: a Commercial Lighting Efficiency Offer Program, Chiller Efficiency Program, Commercial Refrigeration Program, and the Water Conservation Rebate Program.
- Southern California Edison—
Offers a Demand Response Program to help commercial customers save money by reducing use during peak energy demand times; an Energy Efficiency Express Solutions for rebates paid up to 100% on energy upgrades for lighting, temperature control, refrigerators and water heaters; and an Energy Efficiency Customized Solutions Program.
- Southern California Gas Company—
Partners with SCE on the Savings by Design Program, which provides technical expertise and rebates to commercial and industrial customers to reduce energy usage.

ENERGY EFFICIENCY POTENTIAL: COMMERCIAL AND INDUSTRIAL



Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS, specifically from Mark Greninger.

WESTSIDE CITIES: ENERGY EFFICIENCY POTENTIAL: GOVERNMENT AND NON-PROFIT BUILDINGS



The map highlights neighborhoods where potential for energy efficiency investments might be greatest for government and non-profit owned buildings.²¹ Buildings constructed before 1978 in general produce greater cost savings with building retrofits than buildings built after 1978,²² as illustrated in the map. The potential for energy efficiency investments is summarized for the Westside Cities in the statistics table, below.

**Billions
of \$**
are on the table
for energy
efficiency and
clean energy
investments in
California.

		Government and Non-profit Buildings in the Westside Cities		All Buildings in the Westside Cities	
MAP STATISTICS	# of government and non-profit buildings	216	# of total buildings	30,396	
	% built before 1978	84%	% built before 1978	89%	
	Average square footage of pre-1978 buildings	12,818	Average square footage of pre-1978 buildings	4,632	
	% built in or after 1978	16%	% built in or after 1978	11%	
	Average square footage of post-1978 buildings	18,705	Average square footage post-1978 buildings	8,063	

FUNDING OPPORTUNITIES

State policies such as Proposition 39 will distribute billions of dollars to support energy efficiency improvements. The Westside Cities could benefit from state funds for rebates, grants and loans to finance energy efficiency investments, which would save taxpayers' money while supporting local green jobs and reducing pollution.

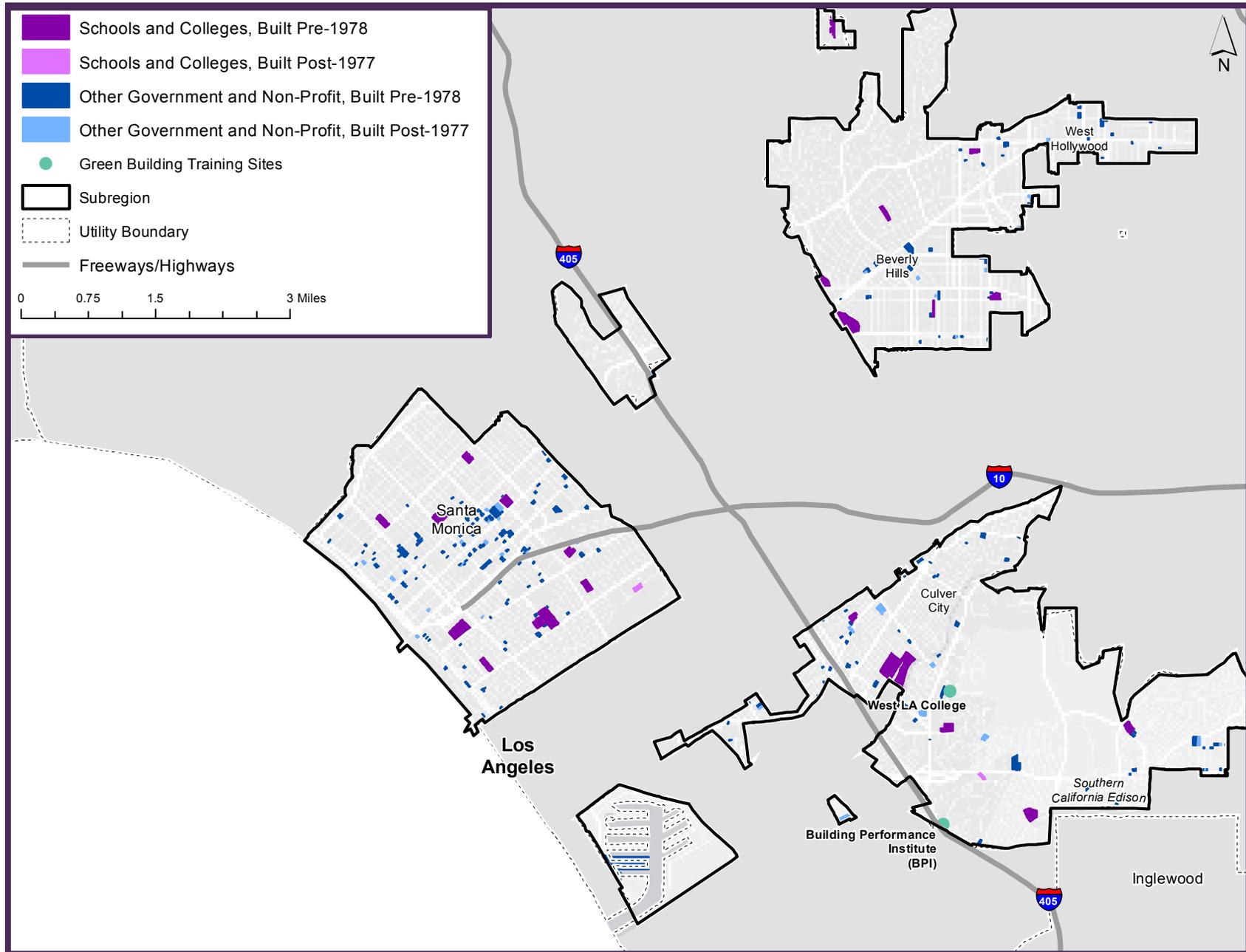
Municipal buildings will be eligible recipients for Proposition 39 funds. The map identifies the municipal buildings constructed before 1978, an indication of likely cost effectiveness for a retrofit.

Schools are pulled out because schools will be prime recipients of Proposition 39 funds. As the map indicates, numerous schools were constructed pre-1978, before energy efficiency building codes were in effect.

Green job training sites will also be supported by Proposition 39 funds. The map identifies green buildings training sites that could be eligible for these funds.

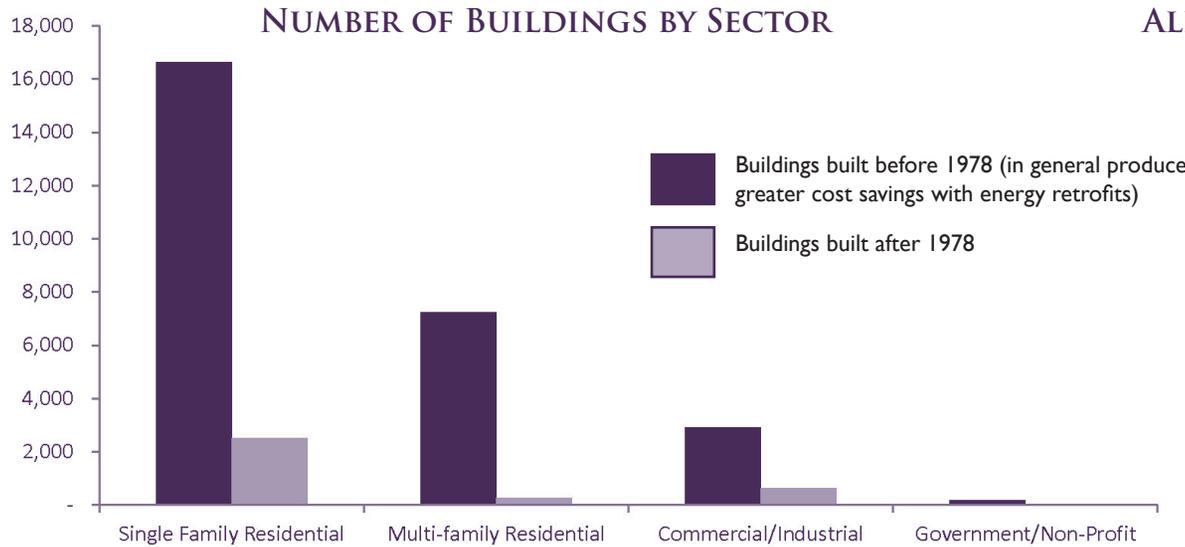


ENERGY EFFICIENCY POTENTIAL: GOVERNMENT AND NON-PROFIT

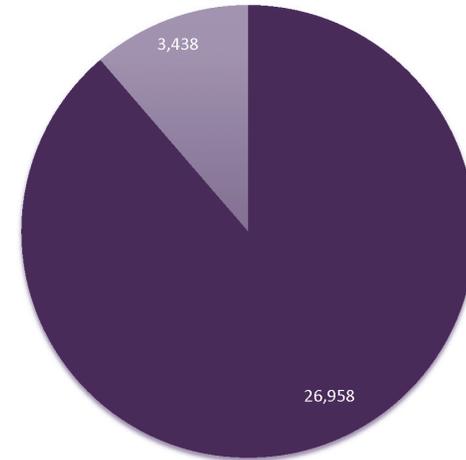


Source: Building age data: Los Angeles County Assessor; Schools: Extracted from Points of Interest (LMS Data) from LA County GIS Portal; Green building training site data: USC Program for Environmental and Regional Equity. Original data from Environment California Research and Policy Center, 2011. "Building a Clean Energy Workforce: Preparing Californians for New Opportunities in the State's Green Economy."

WESTSIDE CITIES: ENERGY EFFICIENCY POTENTIAL SUMMARY



ALL BUILDINGS IN THE WESTSIDE CITIES

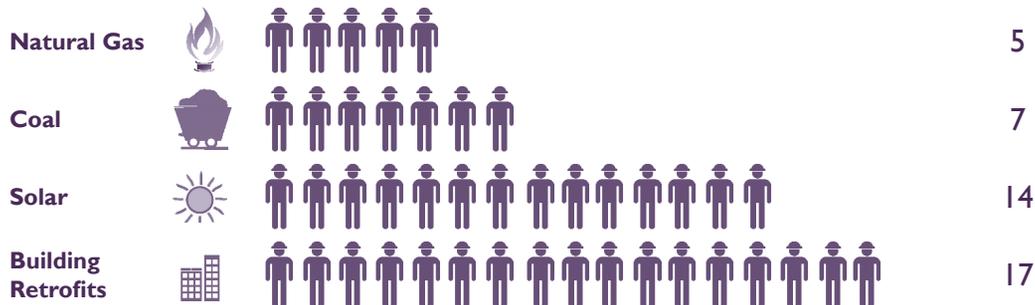


LINKING INVESTMENTS IN WORKFORCE TRAINING TO SUSTAINABLE JOBS

“Sustainable jobs” pay prevailing wages and provide healthcare and access to opportunities for wage growth.²³ To effectively link Proposition 39’s funding for worker training with sustainable jobs, policymakers should consider best practices for a strong pipeline between training programs and careers. For example, the Los Angeles Community College District and the City of Los Angeles have approved project labor/stabilization agreements, or contracts with labor unions, that include goals for local hires and apprentices workers. Apprenticeship programs can create a strong pipeline between education and sustainable jobs and careers.

THE TRUTH ABOUT JOB CREATION

Energy efficiency investments create costs savings for the customer and jobs for the region. Invest \$1 million in the following industries, you get this many jobs.²⁴



REFERENCES

Data sources are listed immediately below the respective map except for the data sources repeated throughout the map listed here:

County map layer: US Census Bureau, “Census Tracts, ZIP Code Tabulation Areas” (2010). <http://www.census.gov/geo/reference/zctas.html>.

Cities, freeways, gray basemap: ESRI Online.

Utility map layer: UCLA self-generated, from city and Southern California Edison service area boundaries.

1. Alex Hall, Fengpeng Sun, Daniel Walton, et al., “Mid-Century Warming in the Los Angeles Region” (2012). Part of the Climate Change in the Los Angeles project. Produced by UCLA with funding and support from the City of Los Angeles, in partnership with the Los Angeles Regional Collaborative for Climate Action and Sustainability (LARC). <http://c-change.la/>
2. There is a 95% confidence that the warming will be between 1.7 and 7.5°F. To account for uncertainty associated with the trajectory of future greenhouse gas emissions and other factors affecting the planet’s energy balance, the researchers inputted projections for both the standard “business-as-usual “ (RCP8.5) and “mitigation” (RCP2.6) emission scenarios. In the map we illustrate the average annual temperature increases modeled under the business-as-usual scenario. Yet the study found that even the best case scenario will lead to significant warming due to emissions that are already moving through the Earth’s atmosphere.
3. Adapted from the “C-Change-LA” website, written and published by Climate Resolve and hosted by the Los Angeles Regional Collaborative for Climate Action and Sustainability, housed at the UCLA Institute for the Environment and Sustainability (accessed February 10, 2014). <http://c-change.la/los-angeles/>
4. California Environmental Protection Agency and the Office of Environmental Health Hazard Assessment, “California Communities Environmental Health Screening Tool Version 2.0” (2014). <http://oehha.ca.gov/ej/ces2.html>.
5. State of California, California Energy Commission & California Public Utilities Commission, “California Solar Statistics” website (accessed on May 8, 2014). http://www.californiasolarstatistics.ca.gov/reports/locale_stats/ Additional source: Los Angeles Department of Water and Power, “Feed-in Tariff Program” presentation to the Board of Water and Power Commissioners meeting, May 6, 2014. According to UCLA Luskin Center’s “Los Angeles Solar Atlas,” LA County has 19,113 MW of rooftop solar potential. These sources indicate that two percent of LA County’s solar capacity has been realized but this could be closer to three percent because solar installation data was not included for the smaller municipal owned utilities in the county and because some installations in Southern California Edison territory may not be reported to the State database. Page 10 provides more detail.
6. Job multiplier derived from the US Department of Energy, “SunShot Vision Study” (2012). The numbers are used for discussion rather than policy purposes. This study estimated that job intensities for photovoltaics were roughly 25 jobs per megawatt in manufacturing/distribution and 25 jobs per megawatt in installation (direct and indirect jobs). These job intensity estimates, using data from 2010, are considerably higher than one would expect in a mature manufacturing/distribution supply chain and installation infrastructure. Future numbers could be lower. Additional source: U.S. Environmental Protection Agency, “Emissions & Generation Resource Integrated Database” (2012). <http://www.epa.gov/cleanenergy/energy-resources/refs.html>. This national calculator may overestimate the greenhouse gas reduction benefits for the LA region, where the electricity generation fuel mix is cleaner compared to the national average.
7. U.S. Department of Energy, “Database of State Incentives for Renewables & Efficiency” website (accessed May 14, 2014). <http://www.dsireusa.org/incentives/index.cfm?state=us>
8. California Energy Commission & California Public Utilities Commission, “California Solar Statistics” website (accessed on May 8, 2014). http://www.californiasolarstatistics.ca.gov/reports/locale_stats/ Additional source: Los Angeles Department of Water and Power, Feed-in Tariff Program presentation to the Board of Water and Power Commissioners meeting, May 6, 2014.
9. “California Solar Statistics” website, data exported from the California Solar Initiative (CSI) incentive solar project application database (accessed January 29, 2014), http://www.californiasolarstatistics.ca.gov/current_data_files/ Additional sources: California Environmental Protection Agency and the Office of Environmental Health Hazard Assessment, “California Communities Environmental Health Screening Tool,” Version 1.1 (2013) <http://oehha.ca.gov/ej/ces11.html> and Version 2.0 (2014). <http://oehha.ca.gov/ej/ces2.html>.

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10. California Independent System Operator, “2014 Local Capacity Technical Analysis,” (accessed March 8, 2014). http://www.caiso.com/Documents/Final2014LocalCapacityTechnicalStudyReportApr30_2013.pdf. For a map, see California Energy Commission, “California Energy Maps,” (accessed March 10, 2014). http://www.energy.ca.gov/maps/reliability/LCR_Southern.html, or see the “2012 Local Capacity Technical Analysis” <http://www.caiso.com/Documents/2012FinalLCRManual.pdf>
11. American Lung Association, “State of the Air 2014” (2014). This report ranked Los Angeles-Long Beach as the most polluted in the nation for ozone (smog) and the third most polluted for year-round particulate matter 2.5, giving LA County a failing grade due to unhealthy pollution levels for at least part of year. The report uses recent quality-assured air pollution data, collected by federal, state and local governments and tribes in 2010, 2011 and 2012.
12. Resilient Communities for America, “Paths to Building Resilient Cities and Counties” website (accessed May, 2013). www.resilientamerica.org.
13. California Environmental Health Tracking Program, “Community Vulnerabilities to Climate Change” (August, 2011). Developed by the Environmental Health Investigations Branch, California Department of Public Health. www.cehpt.org/p/climate_population_vulnerabilities.
14. California Environmental Protection Agency and the Office of Environmental Health Hazard Assessment, “California Communities Environmental Health Screening Tool, Version 2.0” (2014). <http://oehha.ca.gov/ej/ces042313.html>
15. Ibid.
16. Map based on aerial photography of the solar-usable rooftop space, utilizing data from the “Los Angeles County Solar Map” tool at <http://solarmap.lacounty.gov/>. The UCLA Luskin Center modified the data for a regional analysis in the “Los Angeles Solar Atlas” (2011) at <http://innovation.luskin.ucla.edu/content/los-angeles-solar-atlas>.
17. UCLA Luskin Center, “Los Angeles County Solar Atlas” (2011). <http://innovation.luskin.ucla.edu/content/los-angeles-solar-atlas>.
18. The map is not intended to be a complete tool for investigating individual sites, but rather highlights overall spatial trends and opportunities. The map assumes that roofs that have solar potential but cannot currently support solar because of old age or poor quality will be replaced in 10 to 15 years under a standard capital maintenance program, but the map does not contain information about building age or condition.
19. US Department of Energy, “SunShot Vision Study” (2012), page 65. Study estimated that the job intensities for photovoltaics (PV) were roughly 25 jobs per megawatt in manufacturing/distribution and 25 jobs per megawatt in installation. These job intensity estimates drawing from 2010 data are considerably higher than one would expect in a mature manufacturing/distribution supply chain and installation infrastructure, which is not surprising given that the nation’s PV industry in 2010 was in a scale-up phase, where a significant fraction of full-time equivalent jobs were likely focused on business development, research and development, regulatory issues, and production scale-up. Future numbers could be lower.
20. US Environmental Protection Agency, “Emissions & Generation Resource Integrated Database” (2012). <http://www.epa.gov/cleanenergy/energy-resources/refs.html>.
21. This map is best used to identify overall spatial patterns of energy efficiency investment potential. It is an incomplete tool for investigating individual sites. The map does not contain information about electricity usage, energy retrofits, LEED or EnergyStar certification.
22. Analysis is based on the fact that Title 24, California’s energy efficiency building standards, went into effect in 1978. Source: California Energy Commission, “Past Building Energy Efficiency Standards” website (accessed May 15, 2014). http://www.energy.ca.gov/title24/standards_archive/.
23. UCLA Labor Center, “Construction Careers for Our Communities” (2008). <http://labor.ucla.edu/publications/pdf/ConstructionCareersForOurCommunities.pdf>.
24. Employment estimates include direct, indirect, and induced jobs (where induced jobs =.4(direct + induced)) and were derived from an input-output model, using the IMPLAN 2.0 software and IMPLAN 2007 data set constructed by the Minnesota IMPLAN Group, Inc. This data provides 440-industry level detail and is based on the Bureau of Economic Analysis input-output tables. A number of factors create variability in published employment estimates; it is not an exact science. Here, calculations were done by the Political Economy Research Institute at the University of Massachusetts and the Center for the American Progress, “The Economic Benefits of Investing in Clean Energy” (2009), page 29.



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