



Net Zero Energy Community Strategies

For Porter Ranch, Chatsworth, Granada Hills and Northridge Neighborhoods



B N I M

Matthiessen
Consulting

Introduction

The Aliso Canyon Gas Leak has had a devastating effect on Porter Ranch, Chatsworth, Granada Hills and Northridge neighborhoods. Working with the community, Mayor Eric Garcetti and his team have explored the opportunities, and have determined that this community has the potential to become

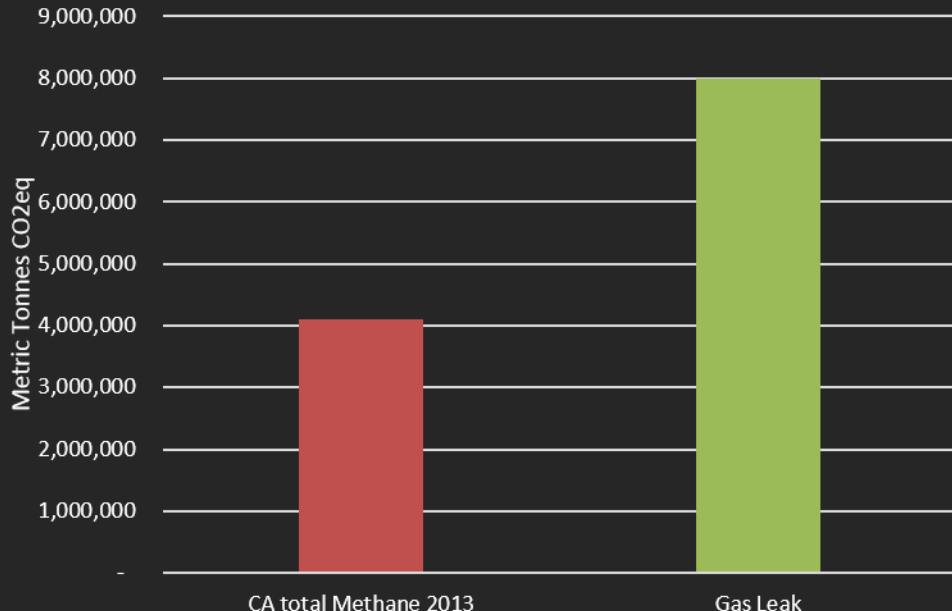
LA's first net zero energy*
and ultra-low emission neighborhood!

The concept of a net zero energy and ultra-low emission neighborhood will be guided by the following principles:

1. *Restore community pride*
2. *Improve home values*
3. *Improve public spaces, health, infrastructure, and community assets*
4. *Reduce energy and water costs*

* What is a net zero energy community? It means the total amount of energy used by all the buildings on an annual basis is roughly equal to the amount of renewable energy created in that area. Any program of this type would be separate and in addition to any individual settlements homeowners and businesses may receive.

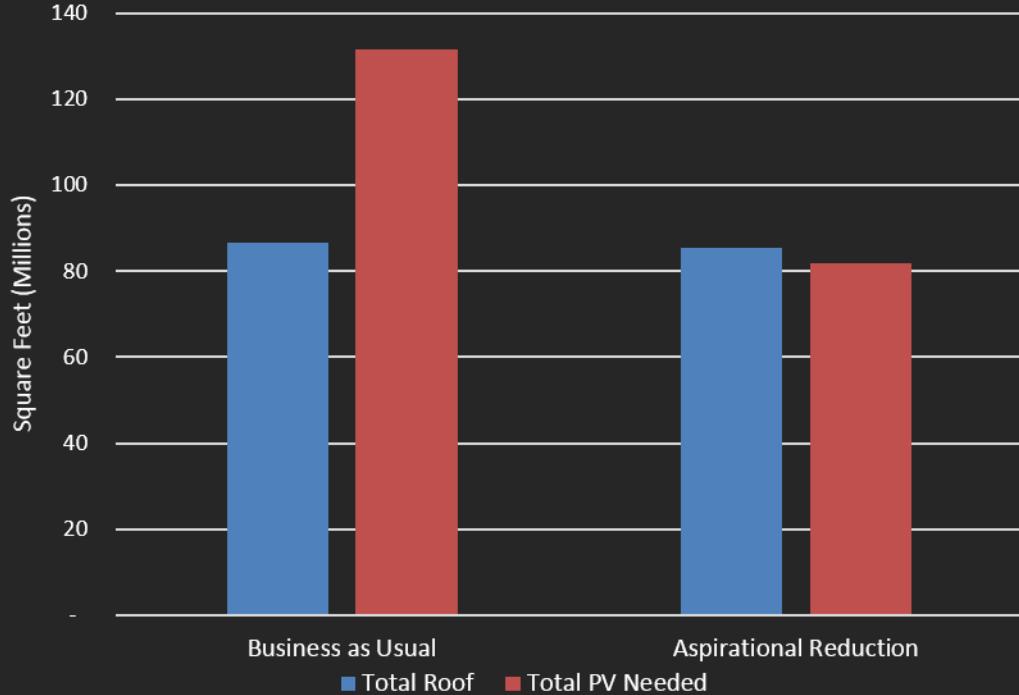
Scale of Gas Leak



The gas leak has disrupted an entire community, causing great economic and emotional hardships – and it has been a major setback to California's efforts to battle climate change*.

We can combat these impacts; we can simultaneously address homeowners' needs and mitigate emissions, paving the way for a healthy and sustainable future.

* Methane emissions from Aliso Canyon were almost double the amount of methane emissions coming from the entire state over the period of a year.



Total PV Required vs. Total Roof Area Available

*Porter Ranch has more than enough roof space to provide all of its own power needs onsite, safely! **

We can dramatically improve property values while eliminating carbon emissions.

Gas and electric bills can be reduced to zero!

*once the recommended upgrades are applied.

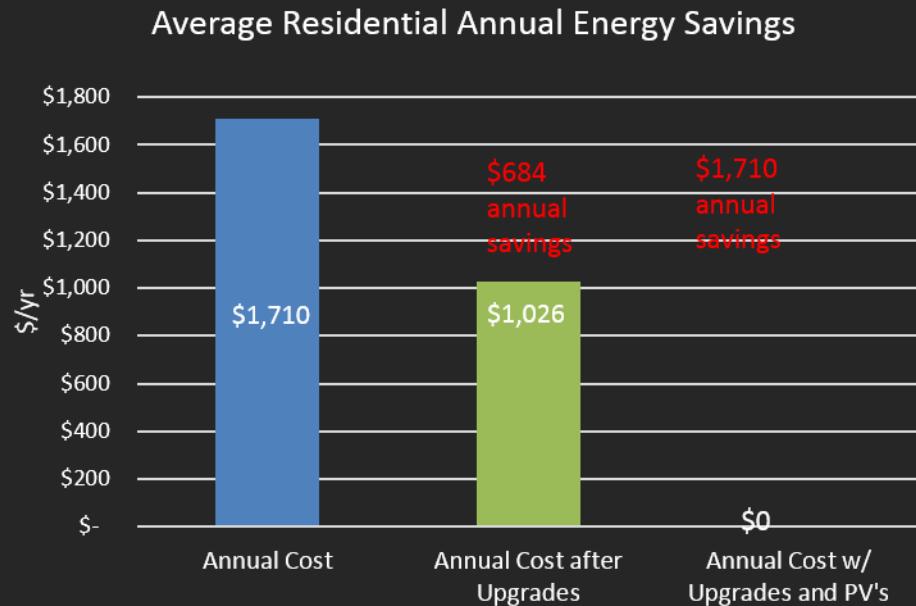
Recommended Upgrades

Drawing from industry best practices, and from community responses, the following energy strategies are recommended:

- Replace windows using high performance glass
- Install “cool roofs”
- Add insulation
- Upgrade mechanical equipment (water heaters, air conditioners, etc)
- Upgrade light fixtures and controls
- Install photovoltaic panels on roofs

These simple interventions will allow home owners to improve property values, improve health and safety, lower annual utility costs, and move towards a net positive future.

Annual Cost Savings to Owners



The average home-owner can expect to save between \$600 and \$2,000 per year, just by making simple upgrades and adding PV's

Energy upgrades will increase property values, and will substantially reduce annual utility costs for building owners.

Upgrade Costs

The following slides describe each recommended measure and estimate the construction costs. Any one measure will be effective on its own, but, in general, these measures will have more impact when applied together.

<i>MEASURE</i>	<i>ESTIMATED COST PER TYPICAL 2,000 SF HOUSE</i>
Upgrade light fixtures w/ LED	\$250 - \$500
Add insulation to walls and ceilings	\$10,000
Install “cool roofs”	\$18,000
Upgrade mechanical equipment	\$3,500 - 7,000
Replace windows	\$9,000
Install photovoltaic panels on roofs	\$40,000 - \$100,000

The above costs do not take into account rebates and third party funding sources that are available from utilities and local contractors.

Strategies LED lighting



Photo credit: setdesignideas.com



Photo credit: facilityexecutive.com

Quality LED light bulbs last longer, are more durable, and offer comparable or better light quality than other types of lighting.

LED's typically use 75% less energy, and last 25 times longer, than incandescent lighting.

Most fixtures can be updated with LED lamps by simply replacing the current bulbs.

Cost:

LED lamps can cost as little as \$5 apiece. A home owner can install LED bulbs for as little as \$250 - \$500. This cost will be recouped quickly with reduced energy costs and longer bulb life.

Strategies Insulation



Photo credit: certainteed.com



Photo credit: accurate-insulation.com

Many older buildings have less insulation than structures built today, but even adding insulation to a newer building can pay for itself within a few years by reducing energy costs. Insulation can easily be added into attics and under existing roofs to improve efficiency in most structures.

Cost

Insulation typically costs about \$5/sf, or about \$10,000 for a 2,000 sf house

Strategies Cool roofs



Photo credit: coolcalifornia.org



Photo credit: energycoolroofing.com

A cool roof is one that has been designed to reflect more sunlight and absorb less heat than a standard roof. Cool roofs can be made of a highly reflective type of paint, a sheet covering, or highly reflective tiles or shingles.

Cost

In general, it makes sense to replace your roof when it is nearing the end of its useful life, which is typically around 20 years.

The new cool roof will typically last longer, and costs around \$18/sf, or \$36,000 for a 2,000 sf house

Strategies HVAC Upgrades



Photo credit: hgtv.com



Photo credit: johnray.com

Replacing or upgrading aging HVAC systems with a more efficient modern system can greatly reduce energy cost.

Cost

The cost to upgrade a central HVAC unit on a residential house is typically between \$3,500 and \$7,000

Strategies Window Upgrades



Photo credit: aandbhomeimprovementroofing.com

Single pane windows and doors allow for a high transfer rate of heat, which is inefficient during both summer and winter months. Replacing single pane windows with dual-paned glazing and high performance glass can drastically improve comfort and reduce energy costs.

Cost

You can expect to pay about \$600 per window. It might cost \$9,000 to upgrade a typical 2,000 sf house

Strategies Solar panels with battery backup



Photo credit: LA Office of Sustainability



Photo credit: fskyttechsolar.com

If you would like to use the energy of your solar system at night, to function off the utility grid, or for emergency backup, you must include a backup power source in your energy system.

Cost

Costs for photovoltaics will depend on how much power you need, and on the configuration of your roof. PV's costs have come down considerably, and often can be bought through a third party contractor, making your upfront costs effectively ZERO.

If you choose to buy the PV's yourself, they might cost between \$40,000 and \$100,000 for a 2,000 sf house.

**The Mayor's Office thanks the Neighborhood Council for
their leadership, and the BNIM / Matthiessen Consulting
team for their services in creating this document.**

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