SUSTAINABLE CLAREMONT

GREEN HOME TOUR

RESOURCE GUIDE

GREETINGS!

When we think about the goal of transforming our lives to be more sustainable, we know that some of our biggest opportunities are under our own roofs! The best place to start being more sustainable is at home, and the time to start is now!

The aim of the tour is simple: we want to provide the on-ramp that will help you take critical first steps towards sustainability at home. To that end, we have invited three homeowners, and three renters to tell us about their journey. We will tour their homes and learn about mistakes made, wisdom gained, how they would have done things differently. Most importantly, we will be exposed to great home sustainability improvements to integrate into our own home.

This resource guide is a detailed synopsis of each home featured in the tour, along with a listing of the contractors and resources that were used by the residents. Be inspired by the steps others in the community have taken. Make the changes in your life and home that will empower you to live more sustainably. Taking steps towards a more sustainable future is possible!

This tour is made possible thanks to the amazing homeowners who have committed to sustainable living, and who have graciously lended their time and experiences to the tour. This includes: Angela and Brian Oakley; Tobias Hecht; Mike and Diane Barnes; Julie and Shawn Medero; Val Rountree & Jeff Hanlon. And a very special thanks to the amazing sponsors who have made the tour possible, the hard work and dedication of the Sustainable Claremont staff and Board who have planed the tour.

Stuart Wood PhD
Executive Director

FEATURED HOMES

A Work in Progress: Jeff and Valerie recently purchased their home and have made significant changes with sustainability in mind. Their primary goals were to increase energy efficiency, improve indoor air quality, shift to clean energy resources, and reduce water consumption. Upgrades include a grey-water system; solar panels and an EV charger; native, drought-tolerant vegetation; an electric car and an electric bike, and more!

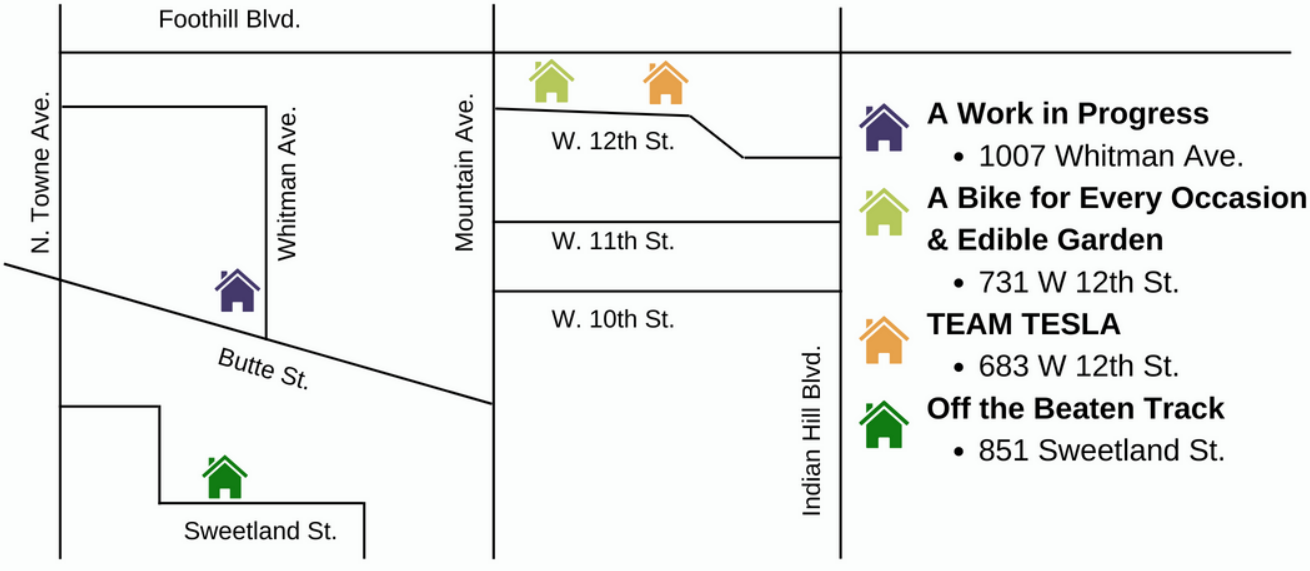
A Bike for Every Occasion and an Edible Garden: The Medero family has been car-free for 14 years, including eight years in Claremont. Check out their fleet of bikes and learn how they transformed their front yard into a robust edible garden.

Team Tesla: Mike and Diane bought their home in 2016, and knew that it would soon need a new roof. They decided on a Tesla solar roof, which would both serve as their replacement roof and allow them to utilize solar energy. They now produce enough power from the sun to power their home and also charge the electric car. Learn about the types of rebates they used to make this transformation possible!

Off the Beaten Track: Tobias set out to have a home that uses both natural systems and the newest tech. From induction cooking to modular heat pump heating and cooling in every room, this home takes innovation to the next level. This is paired with simple solutions: strategic shade trees, a clothesline, blown cellulose insulation, kitchen countertops made from post-consumer recycled paper, and more.

All-Electric Architect-designed ADU: Angela and Brian wanted an ADU to help with aging parents and future housing flexibility. With extensive building & remodeling experience, they took on the role of owner-builder. The finished product includes double-pane window walls, all-electric appliances with ductless mini-splits for heating and cooling, induction stove, electric heat pump water heater, radiant heat bathroom floor, laundry to landscape gray-water system, backyard composting of food waste, 100% recycled composite decking, and a Tesla solar roof.

Wristband is needed for entry at all homes on the tour



VALERIE ROUNTREE AND JEFF HANLON: "A WORK IN PROGRESS"

1007 WHITMAN AVE. CLAREMONT
1960S RANCH, 1,500 FT2

Jeff and Valerie recently purchased their home and have made significant changes with sustainability in mind. Their primary goals were to increase energy efficiency, improve indoor air quality, shift to clean energy resources, and reduce water consumption.

Highlights of their renovations so far include: replacing old, dangerous, single-pane aluminum windows with energy efficient vinyl windows by **Milgard**; replacing carpet with engineered hardwood floors made of sustainably harvested and fast-growing maple; replacing an old, deteriorating roof with reflective **Ecoasis Nex** shingles installed by Gordon Perry Roofing; adding solar panels and an EV charger from **HPM Solar** in Claremont; replacing grass with native, drought-tolerant **vegetation**; and installing a simple greywater system that drains water from the clothes washer directly to the landscape.

In addition to these infrastructural changes – and now that they have a garage! – they have invested in an electric car (**Hyundai Kona**) and an electric bike (**Radwagon** cargo bike). They've also constructed a two compartment composting system (complete with earthworms sourced from **Buy Nothing Claremont**) – to provide healthy soil for their garden.

With some planning and helpful resources, Jeff and Valerie have taken advantage of rebates and other financial incentives to help fund their projects; the costs associated with **solar panels**, **turfgrass removal**, and **EVs** can all be supported by federal, state, and/or local funds.

*All electric **Hyundai Kona** and an electric bike **Radwagon** cargo bike.*

Turf replacement and native plants for landscaping.

Simple greywater system that drains water from the clothes washer directly to the landscape.

Looking Forward

In the near future, Jeff and Valerie plan to replace the gas stove with an induction cooktop, the gas-electric dryer with a heat-pump electric dryer, and the gas water heater with an electric heat pump water heater. **Numerous rebates** are available to help families switch to more efficient appliances. They have also signed up for a **home energy assessment** to identify other opportunities for energy savings, such as through insulation.

Finally, the home came with a custom pool in the backyard. Although it is not heated and the pump is relatively new, the couple is looking into ways to reduce water loss from evaporation and energy consumption, both of which will help lower costs from maintenance.

*Solar panels and an EV charger from **HPM Solar**.*

MEDERO FAMILY: A BIKE FOR EVERY OCCASION & AN EDIBLE GARDEN

731 W 12TH ST., CLAREMONT
1956 RANCH, 1600 FT2

The Medero family has been car-free for 14 years, including eight years in Claremont. In that time, they've acquired an assortment of different bikes that work for different situations:

- **Brompton** folding bikes that are easy to take along on a bus, train, or plane, making multimodal transportation simple.
- A **Larry vs Harry Bullitt** front-loading cargo bike that's been carrying kids, groceries, building supplies, and even furniture for 9 years. It has an internally geared crank, a continuously geared hub, and dynamo lights.
- An **Xtracycle** EdgeRunner with a Haulin' Colin **cycletruck** for carrying kids and groceries, with dynamo lights.
- A **BikeFriday Haul-a-Day** longtail cargo bike with a low step-over height that makes it work for riders 4'6" and taller. We have this bike set up with kid-sized cranks and saddle, making it great for carrying school and sports supplies around town.
- A **BikeFriday Family Tandem** that made the ride from Seattle back to Claremont in 2021. This bike is set up with front and rear racks, a handlebar bag, dynamo lights, and cinq dynamo-powered USB-C charger to power a phone on the go.
- A **Bilenky Viewpoint** semi-recumbent tandem that made the ride from Seattle back to Claremont in 2021. Independent cranks mean that the two riders can pedal at their own pace, and the unique design of this bike puts the stoker out front, which gave our youngest a perfect view on our ride down the coast. This bike has a rear rack and dynamo lights.

Edible Garden

In 2021, we had 14 raised beds installed in our front yard through Sustainable Claremont's Climate Resilient Homes program. We're growing perennial herbs (lemongrass, two kinds of basil, rosemary, thyme, oregano, mint, dill, fennel), and fruits and vegetables (strawberries, rhubarb) alongside seasonal crops, with wildflowers growing between the beds to attract pollinators. A drip irrigation system, installed by Colima Tree, runs on a timer to help crops get the water they need, even in hot Claremont summers, and a simple trellis system maximizes what we can grow in each bed.

What's next? We're in the process of developing plans for our backyard, which we hope will include edible native plants and fruit trees. We're also hoping to start a home compost system, and we're starting to learn about options for greywater systems.

Looking to get an e-bike?

The San Gabriel Valley is now home to a regional electric bike share program. Made possible by the San Gabriel Valley Council of Governments and ActiveSGV, the GoSGV program offers San Gabriel Valley residents monthly subscriptions for electric-assist commuter and cargo bicycles.

Participants can choose from two types of e-bicycle: a commuter-style "City" e-bike or a family cargo e-bike (pictured) designed to carry larger loads and/or small children.

Introductory pricing for the City bike is $69 a month for the general public and $49 for students. The Urban Arrow Family bakfiets or "box bike" – equipped with child seat belts and rated to carry up to 550 pounds – is available from $129 a month for up to 2 months. All bikes come equipped with a lock and charging cable.

TOBIAS HECHT:
OFF THE BEATEN TRACK

851 SWEETLAND STREET, CLAREMONT

The house is situated on land that was once a vast citrus orchard. But the trees were felled in the mid-1950s and in their place developers planted homes purchased by white people whose concerns seemed to erase any hint of the orange groves and of those who had worked them. Going back a bit further in time, there was a semi-arid landscape inhabited by peoples unrestricted by the property lines that now separate neighbors from one another.

In the spring of 2002, we moved here, into a home where the heat of the sun radiated through single-pane windows and the only insulation was the dust that had settled in the attic over the preceding decades. We noticed that often many minutes would go by since the last car had passed, yet the street was so wide that, transposed to any other continent, it might have accommodated four lanes of traffic moving at highway speeds. The developers and city planners responsible for all of this were thinking not of coexisting with a landscape but of erradicating it by building something that could turn a quick profit while ensuring tax revenue for years to come.

We wondered what to do with the home and how to live in this place. In the brief span of a few decades since the suburban neighborhood had sprouted, the average size of American homes had doubled. People encouraged us to expand the house. We politely thanked them, preferring instead to make the most of our 1,157 square feet and not accumulate too many things. We added a window onto the garden and knocked out a wall between the kitchen and living room, which added a sense of openness.

Ornamental trees were planted where once there had been citrus trees and over the years they had grown tall and shaded the home in summer, keeping it cooler than it would have been otherwise. We let them grow higher still. We found that opening the windows at night served as free air-conditioning. We added a whole house fan for cooling when the indoor temperature is hotter than outside and for warmth on sunny winter days.

Taking advantage of the state program Energy Upgrade California, we added insulation in the attic and walls and beneath the floors, replaced the old water heater with a tankless unit, and installed dual-pane windows. With the rebates available at the time, all of that was nearly free.

ABOVE: Above the window is the air handler for the heat pump mini split. These units cool in summer faster than central AC yet require far less energy, as they have no ducts and come with an extraordinarily high SEER rating. In the winter they heat without directly burning fossil fuels as they are entirely electric. Perhaps the biggest benefit is that they are modular. If no one is in a certain bedroom, there is no need to heat it or cool it.

LEFT: Another benefit of the mini-splits: it allowed us to get rid of the bulky furnace, opening up the possibility for three new storage areas and giving this small home a bit more space.

RIGHT: From the interior of the house, this is all you see of the whole house fan. It brings in cool air in summer and warm air in winter with a fraction of the emissions of AC and heat.

Gradually we have electrified. The induction stove, unlike the old gas range, doesn't warm the kitchen in summer and releases no carbon monoxide into the home. The old furnace and air-conditioning were replaced with modular mini-split heat pump technology. Now, if there is no one in one room, there is no need to waste energy heating or cooling it.

A used electric car meets our needs for local transportation, even though its battery pack contains only one third of the toxic metals that power longer-range electric cars.

We purchased barely obsolete solar equipment at auctions on e-Bay and built a small solar system that now generates as much electricity as we consume for all our needs.

Future possibilities

- A garden with native plants that may have grown here long ago
- Outdoor spaces for eating, cooking, studying, and relaxing
- A heat-pump water heater so we can shut off the gas entirely
- Repurposed electric vehicle batteries to store solar energy generated during the day.

Lessons learned

You don't need a clothes dryer in Southern California. The sun does it even better.

A small and barely visible solar system pieced together from "obsolete" equipment offsets the equivalent of all the power used for heating, cooling, cooking, lights, transportation and daily living. Experimenting on his own rooftop, this homehowner has since installed solar at dozens of homes in Claremont and surrounding communities. The next project: an energy storage system built from decommissioned electric vehicle batteries.

The induction range works by exciting the molecules in the pots, which means it does not heat up the kitchen in summer or release carbon monoxide in the home, as gas cooktops do. It's also far easier to clean. While it can boil water faster than a traditional range, it remains cool to the touch–a safety feature for children and spacey chefs.

Countertops made from post-consumer newspaper give a wood-like feel but sustain high temperatures without visible marks if you accidentally put a hot pot on them. We chose a thin version of the material to reduce emissions in shipping as well as cost.

Reflective films on some of the windows keep the home cooler in summer.

A front-loading all-in-one washing machine/dryer has a lot of benefits. As a washer, It consumes less water and electricity, centrifuges better (which reduces energy consumption in the dry cycle), and is gentler on clothing. Having both functions in one machines saves emissions in manufacturing and shipping and space in the home. But combining the washing with line drying is best, as you'll find your clothing will last many times longer, another benefit for the environment.

MIKE AND DIANE BARNES
TEAM TESLA: SOLAR ROOF AND ELECTRIC CAR

683 W 12TH STREET, CLAREMONT
1952 RANCH, 1,800 FT2

Mike and Diane Barnes bought their home in 2016, and knew that it would soon need a new roof. They decided on a **Tesla solar roof**, which would both serve as their replacement roof and allow them to utilize solar energy. Mike and Diane had the goal of using solar energy to power their home and also charge the Tesla that Mike had recently purchased for his daily commute.

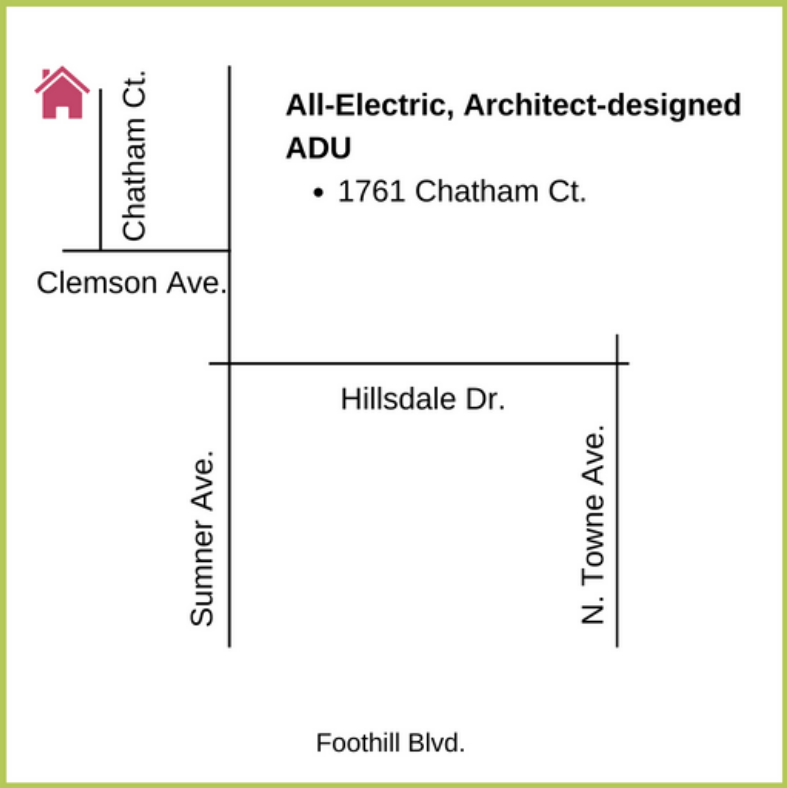
Tesla worked with Mike and Diane to estimate the kilowatts they would need to generate, and therefore, the percentage of the roof panels that would be solar (typically 30-40%). The company also studied the angles of their roof and how the sun would hit the roof at different times of day and seasons to determine the optimal locations of solar panels within the roof. Since the roof has been installed, Tesla has remotely monitored the power generation consistency and sent out a crew to make adjustments as needed.

In terms of funding the roof, the Barnes took advantage of both federal and state rebates. A **federal tax rebate** covered 28% of the solar cost (excluding purely structural components), and a **state rebate** paid for the electric car charger (a 50amp 250V outlet). Mike and Diane also knew that they would be saving money on electricity and gas. Southern California Edison compares what their roof contributes to the power grid versus what they use, and charges them for any excess. In the end, they feel good knowing they have reduced their reliance on non-renewable energy.

Going forward, they have the potential to add solar to their garage roof, if, for example, they replace their second car with an electric car. When it needs replacing, they also would like to update their gas water heater to an electric one.

ANGELA AND BRIAN OAKLEY
ALL-ELECTRIC ARCHITECT-DESIGNED ADU

1761 CHATHAM CT., CLAREMONT
688 SQ FT OF LIVING SPACE + ~500 SQ FT OF OUTDOOR DECK AREA



All-Electric, Architect-designed ADU

- 1761 Chatham Ct.

Angela and Brian wanted an ADU to help with aging parents and future housing flexibility. With extensive building & remodeling experience, they took on the role of owner-builder. Their primary goals were to create a beautiful and right-sized space for 1-2 people that would fulfill green-building criteria.

Breaking ground in February 2021, highlights of this mini-home include: light-filled modern design by local architecture firm, The **Tucker Schoeman Venture**, double-pane windows throughout, 2x6 exterior walls with rock wool insulation throughout, eco-friendly eucalyptus flooring, all-electric appliances with ductless mini-splits for heating and cooling, induction stove, electric heat pump water heater, radiant heat bathroom floor, laundry to landscape gray-water system, backyard composting of food waste, 100% recycled composite decking, and a 3kW Tesla solar roof system.

Angela and Brian were able to take advantage of some rebates and tax credits for the water heater and solar roof and are eager to learn about how they might benefit from the new Inflation Reduction Act signed into law this past summer.

Brian served as general contractor and lead carpenter for the project, hiring experienced tradespeople as needed while Angela took the lead on all interior design and finishes and will continue to oversee the implementation of the water-wise landscape design. Particularly helpful were Laurel Tucker and Mark Schoeman for the architectural plans, **McLay Services** for plumbing and HVAC, **Jason Scherer** for electric work, **SilverHawk Plastering** for stucco, and **Indah Bulan** for the front entryway and exterior landscape conceptual designs.

Looking Forward

For now, the primary purpose of the ADU is to provide a place for Brian's parents to escape Michigan winters. In the longer term, it has the potential to serve many purposes: as a rental house, guest accommodations, flexibility for adult children, and possibly a future home for Angela & Brian to downsize and age-in-place while renting out their larger family home. One day, they hope to connect their garage to the ADU's solar system, which would enable them to charge their electric car, and perhaps eventually a home battery for nighttime energy use. The solar system is still somewhat untested, but they anticipate their solar roof will generate more power than the home will require during the daytime.

Lessons Learned

Despite their previous home remodeling and construction experience, Angela and Brian found the overall planning and permitting process to be somewhat obtuse and difficult to predict. Although each specific interaction with the City of Claremont was friendly and easy, the overall new-build ADU process was confusing, with multiple steps and several entities such as SCE and LA County involved. For Claremont residents embarking on new ADU builds, Angela and Brian as homeowners, not licensed contractors, wished for a clearer roadmap describing a big picture outline of all the major requirements in the design-build process, ranging from the City design approval, to the building permit, through the final inspections and occupancy approval. They unfortunately experienced a 4-month long delay in getting their unit connected to the grid and approved for occupancy due to unforeseen requirements in the process involving the City and SCE.

3kW Tesla solar roof system.

Radiant-heat floor Element.

Rock wool insulation.

Laundry to landscape gray-water system.

RESOURCES

ENERGY CONSERVATION GUIDES

- **Renters**
- **College students**
- **Business owners**

ENERGY EFFICIENCY LENDING PROGRAM

- Southern California Edison's **Energy Efficiency Lending Program** offers Southern California Edison (SCE) customers the opportunity to borrow a table-top induction range or energy and building measurement tools for FREE for up to two weeks.
- Get SCE Resources: Loaner program

ENERGY EFFICIENT PRODUCT REBATES

- See **Southern California Edison's Rebate programs** for savings when you switch to electric appliances like water heaters, smart thermostats, and more.
- Check out **South Coast AQMD's CLEANair Furnace Rebate Program** which is accepting applications for consumer rebates on Ultra-Low NOx High Altitude Furnaces, Ultra-Low NOx Weatherized Furnaces, and replacement of a gas-fired furnace with a traditional all-electric heat pump system.

FLUME

- Claremont residents with a Golden State Water account can get Flume for $25, by simply visiting **flumewater.com/gswater**
- For non Claremont residents, Flume is offering $20 off with the promo code: CLAREMONT. The promotion will be available between: 11/12 - 12/15

PICKMYSOLAR

- PickMySolar provides multiple quotes from a network of approved installers that can help you determine the best deal for your project.

GREYWATER ACTION

- **Greywater Action** is a collaborative of educators who teach residents and tradespeople about affordable and simple household water systems that dramatically reduce water use and foster sustainable cultures of water.

POWER SAVER REWARD

- Power Saver Rewards was created to incentivize saving energy when a Flex Alert is issued by rewarding you for reducing your energy usage. All you have to do is register for Power Saver Rewards at **PowerSaverRewards.org**, reduce your energy usage from 4:00 PM - 9:00 PM* when a Flex Alert is issued and get rewarded.

SOCAL WATER$MART

- **SoCal Water$mart** is a rebate program offered by the Metropolitan Water District and administered by EGIA to help reduce overall regional water demands and ensure greater supply reliability for the region. Through this program, you will be able to access the online rebate application, learn about the program rules and regulations, and even check the status of your rebate.

SUSTAINABLE CLAREMONT

- Since 2009 Sustainable Claremont has maintained lists of local references and resources that provide environmentally sustainable services to our community members. This free **Resource Guide** includes local organizations and businesses that specialize in water conservation, energy efficiency, and more sustainable management of our landscapes and natural resources.
- The **ABC's of Composting Video**: Experienced composters from Sustainable Claremont talk about how to get started and maintain food waste composting systems.

The Switch is On

- The Switch Is On is a collaborative campaign to support home electrification by providing tools, support, and resources to Californians.

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BLUE PLANET UNITED

Sustainable Claremont wishes to express our deepest appreciation for everyone who made this Green Home Tour possible. That includes our dedicated staff, Board, and of course, the homeowners: Angela and Brian Oakley; Tobias Hecht; Mike and Diane Barnes; Julie and Shawn Medero; Val Rountree & Jeff Hanlon.