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Shade-tree mechanics

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Pamela Frickmann drives down the streets of Natomas every day. On block after block, she spots old friends, putting down roots.

"I've worked this neighborhood for so long now, I can monitor how they're doing," she says. "It's amazing how fast they grow."

Frickmann works as a community forester. These leafy friends are trees, providing much-needed shade to homes.

That's particularly important in a new neighborhood like Natomas, former farmland turned sprawling subdivision.

And the most surprising aspect of this urban forest? These trees were provided free to homeowners through the Sacramento Municipal Utility District in partnership with the Sacramento Tree Foundation.

SMUD and other local utility districts and partner programs have planted nearly a half-million trees in the greater Sacramento area. About 18,000 more are added each year.

"We spend about \$1.5 million annually on this program," says SMUD's Misha Sarkovich, who oversees the shade tree effort. "Since it started, SMUD has invested about \$30 million on shade trees. But it's been well worth it."

SMUD estimates that the net savings in energy alone top \$128 million since the program began in 1990. But trees also help clean the air and reduce stormwater runoff. A recent study pegged the total benefits during the trees' lifetime at \$640 million.

That added shade has saved enough electricity to allow SMUD to skip building another power plant, Sarkovich says. Cooling and heating makes up about 60 percent of residential energy use.

Called "Sacramento Shade," the project has been so successful that Rep. Doris Matsui, D-Sacramento, has used it as a model for a proposal now before Congress to create a national shade tree/energy conservation program.

In addition to saving money on electrical bills, these city trees have other benefits. A hundred trees can remove an estimated 300 pounds of particulate air pollution and 15 tons of carbon dioxide every year. In a dozen test cities around the United States, every dollar spent on tree planting returns up to \$5 in other savings.

After the decommissioning of its Rancho Seco nuclear power plant in the 1980s, SMUD pioneered shade tree planting as a way to conserve electricity.

"We didn't know if it would work," Sarkovich says. "But it made sense. Shade cools your house; you need less air conditioning. It cuts your energy use."

On average, homeowners save 40 percent on their cooling costs after three years. For example, a 30-foot tree on

the west side of a house can produce a \$171 annual benefit.

A lot of SMUD's customers have taken advantage of free shade trees, the best known of the district's outreach programs. SMUD services about 350,000 single-family homes. So far, about 150,000 have planted SMUD trees.

"We're reaching market saturation," Sarkovich says. "We're victims of our own success. But there's still room to plant more, particularly in newer neighborhoods."

George Anderson of Folsom got his free trees about five years ago. Two Chinese hackberries now frame his front yard, a beautiful addition to his landscape as well as a boon to the family pocketbook. He planted seven total.

"I didn't specifically calculate how much money we've saved so far, but I have seen a sizable reduction," he says. "What's really great is the house is so much cooler. Our house faces west with big windows. The sun was so intense, it was unbearable. It got really hot. Now, the trees take care of that and it's a lot more comfortable."

With about 30 different kinds of trees to choose from, the program uses only deciduous trees instead of evergreens. Otherwise, that shade – so welcome in summer – would increase heating costs in winter.

Chosen by a panel of arborists, the varieties were selected for their quick growth and easy maintenance. The trees often double in size their first year. The larger varieties can reach more than 25 feet within three to five years. The most popular pick by homeowners right now: red maples.

"They're beautiful trees with a lot of fall color," says Jacobe Caditz of the Tree Foundation. "People love them. They make up about 10 percent of what we plant. We also plant a lot of London plane, Chinese pistache and tupelo. Flowering pears have also been very popular along with crape myrtles."

The biggest complaint? The program does not offer fruit-bearing trees. "They can be messy and they're relatively short-lived," Caditz explains.

Through SMUD's program, home or business owners can receive up to 10 free trees. In addition, the Tree Foundation offers coupons for \$10 off other landscape trees.

Frickmann, a UC Davis graduate, is part of the foundation's troop of five trained foresters. Her tools: a compass, sun hat, clipboard with tree charts, comfortable shoes and spray paint to mark the appropriate planting spot.

"I love trees," she says. "There aren't a lot of programs like this in the country that are so big and have done so much."

By appointment, Frickmann personally visits the site, evaluates what options might work best and talks to the homeowner about tree placement and care. Each visit takes about half an hour; Frickmann and her cohorts usually have a full schedule.

The foundation then delivers the trees – saplings 3 to 7 feet tall – in 5-gallon pots with stakes. It's up to the owner to handle the actual planting. An online video provides more coaching and tips.

"Remember: wide and shallow," Frickmann says of the planting hole. "That's what works best."

In Natomas, Robert Cardines and his young family had just moved into a house with a wide-open backyard. Amid several renovations including a new air conditioner, they made planting shade trees a priority.

"I found out about the program a while back and got some trees for my wife's mother's house," says Cardines, who chose a red maple, a trident maple and a crape myrtle for his home. "Now, it's our turn."

In Sacramento, trees on the west side of the house provide the greatest benefit, followed by eastern and southern exposures. Other considerations include providing shade for windows (to lower heat inside the house) and air conditioning units (so they don't have to work so hard).

Frickmann looks out for obstacles – power lines overhead, water lines underground – with an eye to the future.

"A little sapling could get 40 feet tall and maybe 30 feet wide," she says. "It needs room to grow."

That example could be planted about 15 to 18 feet from the house while still providing plenty of shade. A smaller tree, such as a crape myrtle, could fit 8 to 12 feet from the home.

"One problem in Natomas is so many of the lots have these teeny, tiny front yards and almost no side yards," she notes. "There's not as much room to squeeze in a tree."

Lorraine Darrington had SMUD trees planted at her Natomas home several years ago and was ready for more. "The afternoon sun gets so hot," she says, "and my yard is so big."

In Darrington's backyard, Frickmann found a perfect spot for a new tree, another maple. Within two years, it should start taking some of the heat off the home's window-filled back rooms.

The forester also took time out to check on Darrington's other trees, regardless of their origins, and made recommendations. Two were hampered by support stakes left on too long. Rock mulch was too close to trunks. One was growing too big and too close to the home.

Then it was off to the next home and more visions of shade.

"What's really neat is Sacramento is the City of Trees," Frickmann says, "and we're adding more."

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