

# Save Dollars With Shade



~ A Community Tree Planting Solution to Conserve Energy ~

## Just Plant Trees

Imagine a solution to rising energy prices as simple as planting trees. We've all grown up with trees, climbed in them, and probably even planted a few. But how many of us know that they significantly contribute to cooling our homes, businesses and communities?

## Millions of Trees Still Needed

Studies in various parts of the West show that many communities have trees that produce shade and summer time cooling. However, Dr. Greg McPherson, Director, Center for Urban Forest Research, Pacific Southwest Research Station in Davis, California, points out that "over 100 million tree planting sites exist on the east and west side of buildings in the western U.S. with high energy saving potential. These sites need to be filled. Planting these sites will save billions of energy dollars and should be a high priority for all communities."

## Trees Conserve Energy By:

- Shading, which reduces the amount of radiant energy absorbed and stored by built surfaces.
- Evapotranspiration, which converts liquid water in leaves to vapor, thereby cooling the air.
- Reducing the velocity of wind, which slows the infiltration of outside air into inside spaces.

*Where would you rather live?*



*Strategically Placed Trees Save Energy Dollars*



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# Invest in Your Future



## Opportunity is Now

Short supplies of energy and escalating costs have captured everyone's attention and renewed interest in energy conservation. For over 10 years, some utilities have demonstrated that investment in strategically placed trees is cost-effective. It's time for communities to make the same investment.

## Trees Really Save Dollars

According to Dr. McPherson, "If you plant a tree today on the west side of your home, in 5 years your energy bills should be 3% less. In 15 years the savings will be nearly 12%." (These are typical savings for a home in the Southwestern U.S. Savings will be somewhat less in cooler climates).

"Our research also shows that by just planting two more trees – one on the west and one on the east – the savings can increase another 10%. That's nearly one-fourth of a typical month's energy bill that families can save by merely planting trees."

For example, if a family's monthly bill runs \$50 for air conditioning during the six hottest months of the year, it will save approximately \$75 during the cooling season. If enough families and

communities planted trees to fill the 100 million empty tree sites, in the west, savings could exceed \$1 billion annually. These trees will reduce the summertime peak demand that has led to increased prices and potential blackouts.

*100 million new trees  
will save 1 billion dollars a year.*

## Immediate Benefits From the "Old Guard"

Years ago, many communities discovered that investing in shade pays off. Just drive through some well treed communities on a hot summer day and discover how much cooler you feel in the shade of large trees than under the hot sun.

Dr. James Simpson of the Center for Urban Forest Research reports finding temperatures "5-10 degrees cooler, and as much as 20 degrees cooler, in the shade than in nearby areas without shade." Older trees are providing the immediate energy-saving benefits that we are all seeking. The investment community leaders made 30, 50 or 70 years ago is producing dividends today.

## We're Not Done Yet

"This tree-investment portfolio is not quite complete," says Dr. McPherson. "Two investments still need to occur. First, we need to continue to provide high quality maintenance for our older trees to increase their longevity and ensure that they continue to provide desirable shade. Second, we need to plant the empty 100 million sites."

## Make the Investment

Community investment in a municipal urban forestry program that manages and cares for public trees will remedy the first deficiency in our tree-investment portfolio. The second remedy will come from the people – homeowners, business owners and community groups working together.

With the proper information on how and where to plant trees, individuals can successfully make a significant investment in their family's future, as well as their community's future.

## It's a Simple Act

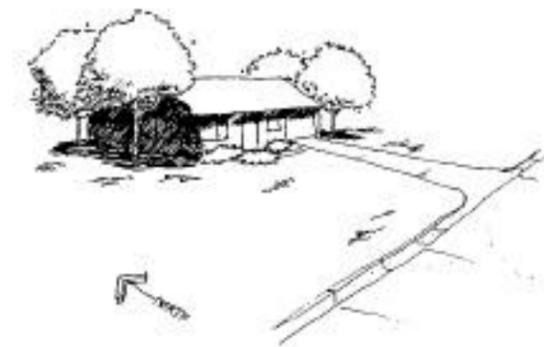
"The simple act of planting trees to conserve energy will help a community's energy conservation efforts," says Dr. McPherson. "However, to be effective, trees must be properly selected, located, planted, and maintained. Neighborhood tree planting and tree care projects stimulate investment in our future – and create better communities."

*Two investments still need to occur. First we need to continue to provide high quality maintenance for our older trees to increase their longevity and ensure they continue to provide desirable shade. Second, we need to plant the empty 100 million sites.*

*--Dr. Greg McPherson, Director,  
Center for Urban Forest Research*

## General Tree Planting Recommendations:

- Plant shade trees on the west and northwest sides of homes (west and southwest sides in northern climates) to provide the greatest energy benefit. Plant deciduous trees on the east side of homes to provide the next greatest energy benefit.
- Avoid planting trees in front of south windows.
- Locate trees so that, when mature, they will not shade solar collectors.
- Plant evergreen trees as windbreaks. Check with your state urban forester or local tree professional for site specific information.
- Use shade trees to make paved driveways and patios cooler and more comfortable.
- Shade your air conditioner to reduce its energy use, but do not plant vegetation so close that it will obstruct air flow around the unit.
- Plant appropriate trees near overhead power lines, and do not plant directly above underground water and sewer lines.
- Be sure to pick the right tree and right location. Check with your local tree professional for advice on selecting appropriate species and properly locating, planting, and maintaining them.



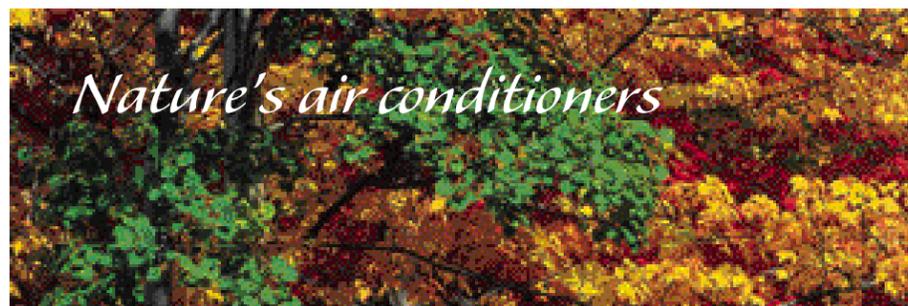
*Locate trees to shade west and east windows*

*More than half of a building's heat gain in summer/winter comes from sunlight shining through windows.*

## A Checklist

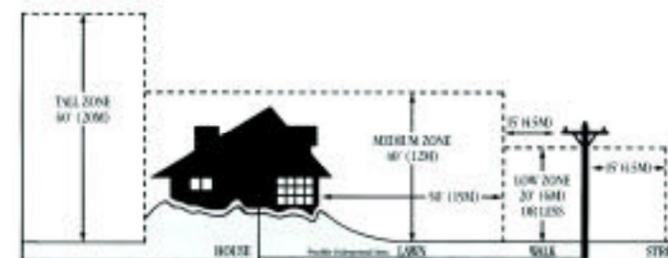
*for designing a tree planting program:*

- 3 Envision your communities' future with trees
- 3 Create a tree advocacy group
- 3 Develop a tree planting plan
- 3 Set goals and priorities
- 3 Recruit, mobilize, and recognize volunteers
- 3 Provide timely, hands-on training, and technical assistance
- 3 Develop a list of recommended trees
- 3 Obtain high quality nursery stock
- 3 Commit to long-term care and maintenance
- 3 Educate the public
- 3 Continually evaluate your progress



*Nature's air conditioners*

PHOTO: Comstock



*Different trees have different planting locations.*



Center for  
Urban Forest Research

*Science for Creating  
Better Urban Forests*

#### Research

We conduct research that demonstrates new ways in which community forests add value to your community. We convert results into financial terms to assist you in stimulating more community investment in trees.

#### New Technology

We create new methods and strategies for managing and caring for community forests to help you optimize the benefits, and investment value, of your own community forest.

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## SAVE DOLLARS WITH SHADE

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