



Lighting the way

On Dec. 4, the governor will flip the switch on a greener Christmas tree

By Alison apRoberts - aaproberts@sacbee.com

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Chief Stationary Engineer Dustin Peard helps decorate the Christmas tree in front of the state Capitol in preparation for the Dec. 4 tree-lighting ceremony. The tree's 65,000 lights are powered by a hydrogen fuel cell system made by Alteryg Systems, based in Folsom. Bryan Patrick / bpatrick@sacbee.com ... [See additional images](#)

Just how green is our State Capitol Christmas Tree?

Pretty green, literally and environmentally.

Thanks to LED bulbs, hydrogen fuel cell power and an ultimate destiny as mulch, there's no way Santa would put dirty coal in the state's holiday stocking.

On Tuesday, the 76th annual tree lighting ceremony will be led by His Greenness himself, Gov. Arnold Schwarzenegger, and first lady Maria Shriver.

Last year, the governor made much note of the state tree's foray into the green zone, with the use of a hydrogen fuel cell system to power its 6,500 lights. You can call up the video on YouTube to relive the governor's tidings of environmental comfort and joy just before flipping the switch.

"It's powered not by regular electricity but by a hydrogen fueling cell, because we are now environmentally a cool state," Schwarzenegger told a cheering crowd. "You know, we are doing all kinds of great things to make sure that we are protecting the environment and we are fighting global warming. This state has its act together. We are national leaders on this subject. I'm very proud of that."

The last time the environment was addressed by a governor during this ceremony was a less bright occasion. It was in 2001, when the state's energy crisis dimmed the holiday glow. Gov. Gray Davis threw the switch for the lights, but they were turned off 30 minutes later. "Tonight, while some Californians are going without power, let the light in our hearts represent the true spirit of the season," Davis reportedly said.

For this year and last, the Stationary Fuel Cell Collaborative, a private-public partnership, coordinated use of the fuel cell for the tree. The cell unit, both years, was produced by Altery Systems, based in Folsom.

A hydrogen fuel cell produces electricity as it converts hydrogen and oxygen into water. It's not cheaper than electricity from SMUD as a power source. Yet.

"The cost is rapidly coming down and it will soon be comparable to traditional electricity sources. Today, it's still a little bit more," said Nancy Frank, a spokeswoman for Altery.

The real payoff is in its cleanliness.

"It emits absolutely no toxins whatsoever, just water and some heat," Frank said.

Producing hydrogen does use energy and can create some carbon dioxide – a greenhouse gas – but generally it creates considerably less than energy produced by coal-fired power plants.

The Altery fuel-cell unit itself looks like a basic box, a bit larger than a window-unit air conditioner. It makes very little sound when operating, just a little whirring of a fan and a click or two as it cycles on and off.

Frank says that California was the first and only state to use fuel-cell technology to power a Christmas tree last year. She doesn't know if that is true this year.

On top of the fuel-cell power source, the state tree also uses LED lights – making the public display even more efficient. Frank said the power needs of the tree dropped by 98 percent by switching from incandescent bulbs to LED.

So when will you have hydrogen fuel cell-powered lights for your tree at home? Don't hold your breath, but Frank says market analysts predict that such technology will trickle from its current occasional commercial use to widespread domestic use sometime in the next decade.

Despite the very public debut last year, no one was worried the lights would fail, according to Dimitri Stanich, spokesman for the California Air Resources Board, which is part of the Stationary Fuel Cell Collaborative.

"We had no concerns about that," Stanich said. "The technology is pretty solid and proven."

Public acceptance is lagging behind the technology's reliability.

"One of the battles that we have ... is making the public comfortable with the technology," Stanich said. "We have an aversion to hydrogen because of the Hindenburg."

Stanich was referring to the spectacular 1937 destruction of the Hindenburg, a hydrogen-filled zeppelin that caught fire while landing in New Jersey, killing 36 people. In fact, NASA researchers concluded that highly flammable fabric covering the dirigible was the cause of the fire, not the hydrogen.

When it comes to hydrogen-fueled cars, studies indicate they are less likely to be engulfed in flames than other cars, according to Roy McBrayer, program manager for the governor's Green Building Initiative.

Stanich said that watching the tree come to light and seeing the crowd ooh and aah over the feat marks progress in public support for hydrogen fuel technology.

"It was exciting to see the crowd around me be excited," he said of last year's ceremony. "These are the kinds of things that give us hope."

Finally, when the tree comes down in about a month, it will bid adieu in an environmentally correct manner: chipped and put into state planting beds.

From start to finish, the state tree ensures California will have itself a mulchy little Christmas.