

As cooped-up buyers dream of going off the grid, take a virtual tour of 16 area solar homes

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Solar pioneer John Avenson, left, with Passive House Alliance gets a look at a newly built solar home in Golden Gate Canyon by **Martijn and Beth van de Rijdt**.



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Just as CV-19 has thousands of Coloradans reimagining where they want to be living, the crisis has some of those people thinking seriously about solar and renewable energy — building or remodeling to generate more of your own energy, at a moment when people are officing from home much more than in the past. Solar pioneer John Avenson has been watching the interest in solar skyrocket the past few months; and today he and other members of non-profit New Energy Colorado have a way for you to get serious about those ideas.

ANNUAL METRO DENVER GREEN HOMES TOUR

- **What:** Annual Metro Denver Green Homes Tour, a virtual tour of 16 solar and other sustainably designed homes
- **Price:** Free, donation optional
- **When:** Sun. Oct 4

• **More Info:** MetroDenverGreenHomesTour.org

This weekend is the 26th Annual Metro Denver Green Homes Tour — this year a virtual event featuring 16 homes around the area, including one Avenson showed me this week, ten miles up Golden Gate Canyon Road. Martijn and Beth van de Rijdt had dreamed about creating a net-zero home for a pretty property backing to Centralia Mountain; and they made that happen in 2018.

Check out this 2,000-sq. foot design to see how far solar has come over the past 40 years: It has the core features of passive solar—more glass on the south to let sun in, less glass on the north; with roof shading to keep the sun out in summer, and lots of interior mass to store heat. Many houses were built like that in Denver and the foothills during 1970s-80s when solar was hitting peak popularity; but a tech revolution in energy conservation, ventilation, and back-up heating allows homes like this to go way beyond what was possible back then.

Starting with insulation: The van de Rijdt house has double 2x4 walls that allow insulation levels that were only done in ceilings a few decades ago — so high, says Avenson, that the incremental addition of even more insulation doesn't change the equation much.

On this home, the backup heating is a hybrid hot water tank that heats kitchen and shower water but also supplies radiant heating through the concrete floors to boost the solar heat they're storing.

Avenson shows the heat exchange system in the home.



The van de Rijds have a bank of solar electric panels on the hill behind the home that provides all of the back-up; and a network of pumps and air exchangers that sends heat around the house to deliver fresh air and keep the system from running too warm.

Below: The van de Rijds just completed this outdoor patio kitchen area near their photovoltaic array.



All of that puts the home close to net-zero energy use, despite the fact that the van de Rijds have their Tesla plugged into the same system (it runs virtually exclusively off the solar). Martijn, who was a building engineer in a previous life in the Netherlands, says he's contemplating adding some more solar panels to take it below the zero threshold, but the difference is almost negligible. They get an electric bill that adds up to only \$20 or so per month—for a home up at 8,500 feet elevation, where winter temperatures average 12 degrees colder than here in town.

The way to 'see' that and other homes is at MetroDenverGreenHomesTour.org — where you can register free, or

make a donation if you want to support this tour that coincides each year with the National Tour of Solar Homes by the American Solar Energy Society. You'll also get links to three podcasts on solar, including one by Avenson and by Steve Nixon at the National Renewable Energy Laboratory in Golden, on alternative paths to achieving your own low or zero-energy home.

The van de Rijds in their kitchen in Golden Gate Canyon.



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