Irvine can lead fight on climate change, by transitioning to solar

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Solar energy over the past six years more than doubled in 45 of the 57 largest American cities, according to a new report. Los Angeles leads all cities with the most solar power. However, some upstart cities — about 19 — have quadrupled their solar power capacity from 2013-2018 and surprisingly, Riverside is one of them. There's enough solar power in American cities to power 1 in 11 households.

Picture Credit:
(File photo by Nick Agro, Orange County Register/SCNG)

The Intergovernmental Panel on Climate Change warns we have until 2030 to reduce our global carbon dioxide (CO_2) emissions by 45% to avoid a catastrophic outcome. Short of this, we can expect worsened droughts, diminished air quality and skyrocketing food prices. This reduction seems insurmountable. But it does not have to be. Our plan to harvest — and store — solar power can get us there.

Consider Irvine: We have the resources and motivation to go net-zero — even net-negative — in CO_2 emissions within 10 years. Irvine previously led the way to save us from another existential threat: the destruction of the ozone layer by CFCs. Our city laid the groundwork to ban CFCs in 1989, the first municipality to do so.

A year later, cooperation between the city and UC Irvine's Nobel laureate Professor of Chemistry Sherwood Rowland led to the creation of what is now ICLEI — Local Governments for Sustainability, the world's largest organization of city governments sharing best practices in environmental policy. Irvine is positioned once again to be a world leader by reducing — even eliminating — CO2 emissions. The policy vehicle through which this may be achieved is Irvine's recently passed drafting of a climate action plan.

Specifically, we advocate here for a staunch transition to solar energy use, which ought be a centerpiece of the Climate Action Plan. We calculate that the average resident's electricity usage is about 2114 kWh, natural gas usage about 11,000 cubic feet and automobile usage is about 8,572 miles, all per year per person. This amounts to a total annual usage of 2.1 EJ for electricity, 3.2 EJ of natural gas heat and 2.4 EJ of electrical car transport energy for all of Irvine's residents. The amount of solar energy touching Irvine's rooftops is alone sufficient to power our residential electrical, heating and transportation needs.

This means that adding solar to our municipal and retail parking lots would bring our residents to net-negative carbon emissions, with power derived right here in our city. This plan is not dependent on the sun always shining. Around-the-clock energy source storage is available and cost effective for carbon-free electricity, in a recent Stanford-Berkeley study that showed that existing technologies can provide the storage.

Who would pay for it? Replacing fossil-fuel energy with cheaper solar and storage can be financed with zero or little up-front cost via existing arrangements like a solar lease or power-purchasing agreement that takes advantage of this cost benefit, and the city of Irvine could facilitate.

In addition to these solar energy-based solutions, we also point to Sonoma County's model of funding rebate-based incentives for electric vehicles, and recommend it be replicated in Irvine. This type of incentive system makes the widening array of electric vehicle models put into market by Ford, BMW and Mercedes all the more accessible — and with it, the local emissions reduction to be gained.

This model is not only Irvine's to implement, but can be part of the quick march to net zero for all of Southern California, and beyond. Irvine's Climate Action Plan should be bold, attaining and even surpassing what we need globally in our local

implementation. The lower cost of solar plus storage makes the financial potential available to transform our city’s energy usage to again become a global leader, with little cost up-front other than planning.

We have the resources and motivation, and with the proper partnerships across the public, private and academic sectors, a green, net-zero future can become reality.

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