New report highlights many unknowns in green hydrogen plans across California

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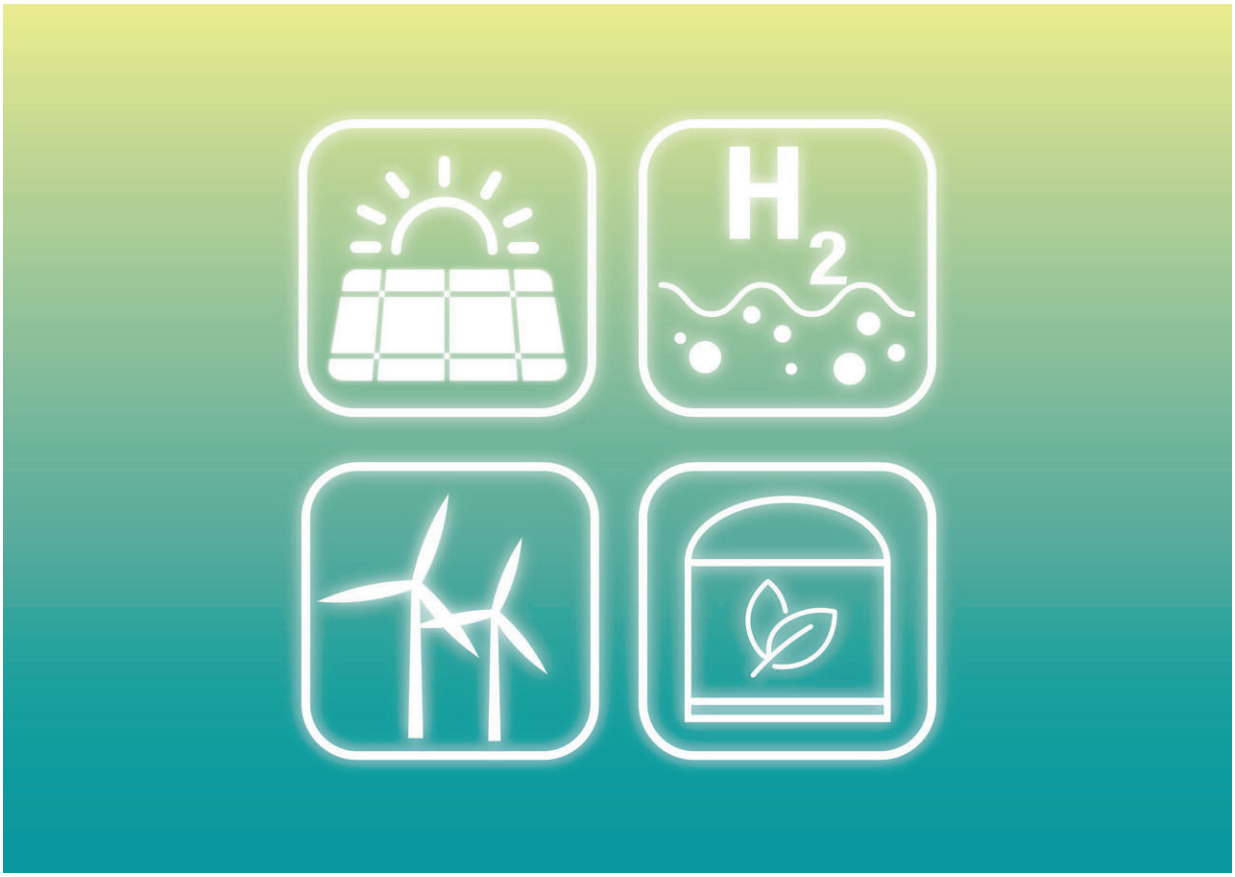

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Officials throughout the state of California have developed plans to start deploying green hydrogen at scale in the coming decade in order to reach

California's 2045 climate neutrality targets. A new analysis, published by scientists at PSE Healthy Energy, finds that while certain applications of green hydrogen may present opportunities to lower greenhouse gas emissions, many challenges remain and misalignments between current proposals could undermine progress toward state climate goals.

"Many state and local agencies are counting on massive build outs of green hydrogen infrastructure in the coming decades to achieve their climate targets," said PSE Healthy Energy Scientist Bethany Kwoka. "But without coordination between decision makers, communities, and industry we could see overwhelming demand that ultimately undermines energy security and reliability."

The report, "Green Hydrogen Proposals Across California," identifies opportunities, challenges, and risks associated with several proposed energy transition plans, including the California Air Resources Board's 2022 Scoping Plan, the Los Angeles Department of Water and Power's Strategic Long Term Resources Plan, and the Alliance for Renewable Clean Hydrogen Energy Systems hydrogen hub. Based on these plans, the researchers analyzed the implications of a broad range of proposed applications, with a particular emphasis on the energy inputs required to produce hydrogen and the climate, environmental, and public health dimensions associated with its production and use.

"While hydrogen may make sense for certain hard-to-electrify applications, many of the uses currently being proposed have more efficient alternatives," said PSE Senior Scientist Boris Lukanov. "Blending hydrogen into existing gas pipelines, for instance, provides minimal climate benefits and has potential safety risks. If the goal is to decarbonize home heating, heat pumps are a safer and more cost-effective alternative, as they require roughly one-fifth the renewable electricity to deliver the same amount of heat."

Based on their analysis, PSE researchers recommend that planners and decisionmakers better characterize the system-wide impacts, both positive and negative, of hydrogen deployment scenarios and alternatives before rapidly expanding hydrogen infrastructure in the state.

More information: Elena Krieger et al, Green Hydrogen Proposals Across California (2024)

Provided by PSE Healthy Energy

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