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EPRI Comments on EPIC 4 Investment Plan Workshop (July 1, 2021)

Additional submitted attachment is included below.



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The Electric Power Research Institute, Inc. (EPRI) commends the California Energy Commission (CEC) staff for hosting a workshop on July 1, 2021 entitled **“The Role of Green Hydrogen in a Decarbonized California – A Roadmap and Strategic Plan”** and engaging with stakeholders on the process, proposed research initiatives, and technical topic areas. We appreciate the opportunity to comment on this topic to further inform the EPIC 4 Investment Plan.

EPRI believes that hydrogen has the potential to help enable "our generation's moonshot" — economy-wide decarbonization. During April's Leaders Summit on Climate, U.S. Energy Secretary Jennifer Granholm [spoke](#)¹ of the bold action and fearless innovation needed to mitigate climate change and meet our "moonshot" moment. And in June, Granholm announced the Department of Energy's ["Energy Earthshot"](#)² program, the first initiative which focuses on bringing down the costs of hydrogen to make the low-carbon technology cost competitive.

According to a 2019 EPRI [study](#)³, improvements in the efficiency and cost of electrolyzer technologies, which use electricity to split water into hydrogen and oxygen, demonstrate progress toward large-scale hydrogen production and deployment. However, for hydrogen to serve mass markets as a low-carbon fuel and long-duration energy storage resource, it must become even more cost effective.

The Department of Energy estimates hydrogen production costs need to be at or below \$2 per kilogram to be cost effective in the transportation sector. And according to our study, there are a number of routes that could achieve this cost target — but all require aggressive capital cost reductions, significant improvements in efficiency, and low-cost electricity.

The Biden administration is also focused on reducing the overall costs of hydrogen, and through its Earthshot program, it's seeking to bring down the cost of hydrogen by 80% to \$1 per kilogram. Achieving this target will only be achieved with large-scale, focused innovation and collaboration, which will require close coordination between the public and private sectors to accelerate and enable investment in the technology and accompanying infrastructure. Creating a commercially viable hydrogen market

must include the ability to affordably produce, easily move, efficiently store and competitively sell hydrogen for a wide range of uses and applications.

Sustaining a low-cost and reliable hydrogen energy system will not come easy but may be critical to various segments of our economy. In addition to supporting the economy-wide transition to a net-zero emissions future, there is potential to create new workforce opportunities, build resilient energy systems and bring affordable clean energy to everyone.

The [Low-Carbon Resources Initiative](#)⁴ (LCRI), led by EPRI and the Gas Technology Institute (GTI), brings together more than 45 companies across the global energy ecosystem to accelerate and demonstrate low-carbon resources, like hydrogen, essential to meet longer-term emissions reductions goals. **LCRI's California members include Los Angeles Department of Water and Power, Southern California Edison, and Southern California Gas Company.**

LCRI focuses on investigating the deployment of new and emerging technologies to enable a cleaner energy system, while maintaining safety, reliability and affordability. While there is no one-size-fits-all solution, hydrogen is a low-carbon resource that, through collaboration across the scientific community, public and private sectors, could help us meet our generation's "moonshot" moment.

As CEC staff and stakeholders establish a hydrogen roadmap with ongoing updates as part of the EPIC 4 Investment Plan, we invite you to utilize the recently published [LCRI Research Vision](#)⁵ as a resource. The Research Vision document presents the motivation for the LCRI, research questions that address the initiative's focus areas, and preliminary research plans aimed at advancing critical technologies in support of the LCRI's objectives. This vision is a living document and will be updated over the life of the initiative based upon learnings from the research under the LCRI as well as developments in the broader energy community.

Thank you again for the opportunity to comment on this important EPIC 4 Investment Plan topic. We look forward to future opportunities to collaborate with CEC and other key stakeholders.

Sincerely,

Jeffery Preece
Sr. Program Manager
EPRI/LCRI

Links:

1. <https://www.energy.gov/articles/remarks-delivered-secretary-granholm-president-bidens-leaders-summit-climate>
2. <https://www.energy.gov/articles/secretary-granholm-launches-hydrogen-energy-earthshot-accelerate-breakthroughs-toward-net>
3. <https://www.epri.com/research/products/000000003002014766>
4. <https://www.epri.com/lcri>
5. <https://lcri-vision.epri.com/>