CONNECTICUT LEAGUE OF CONSERVATION VOTERS EDUCATION FUND

Clean Hydrogen

THE PROBLEM

As the impacts of climate change intensify, it is increasingly clear that we must act more quickly to reduce greenhouse gas (GHG) emissions to prevent catastrophic consequences to our planet. The Global Warming Solutions Act requires Connecticut to reduce GHG emissions 45% by 2030 and 80% by 2050. The law also requires 100% zero-carbon electricity to be supplied to Connecticut customers by 2040.

Transportation and buildings are the biggest sources of GHGs in Connecticut. Fortunately, we already know how to decarbonize these sectors: **electrification** is the most efficient and cost-effective way to cut GHG emissions from transportation and buildings. Nearly half of New England's electricity is already produced from zero-carbon sources, and the electric grid will continue to get cleaner as we build more wind and solar and invest in energy efficiency and storage.

But how can we reduce emissions from other sectors that are **hard to electrify**, like high-heat industrial processes and aviation? These hard to decarbonize end uses are where clean hydrogen has a role.

THE ROLE OF CLEAN HYDROGEN

There is growing interest in using clean hydrogen to reduce emissions and meet climate goals. But since the majority of hydrogen is currently produced from fossil fuels, most hydrogen available today is NOT a climate solution.

Producing clean hydrogen will require a lot of new renewable energy—*in addition to* what's needed to meet the state's goal of 100% zero-carbon electricity by 2040. That means Connecticut must be strategic in using clean hydrogen where it offers the most value.

As the Connecticut Hydrogen Task Force concluded in its recent report, clean hydrogen makes sense for end uses that are hard to electrify, like maritime shipping, long-haul heavy-duty trucking, high-heat industrial processes, and aviation. It doesn't make sense for light-duty vehicles or heating buildings.

Robust public processes are needed so stakeholders and communities can inform the state's approach to clean hydrogen and ensure that priorities like equity and environmental justice, workforce development, and state climate goals are taken into account.

FAST FACTS ABOUT HYDROGEN

- Currently, 99% of hydrogen is produced from fossil fuels and is NOT a clean source of energy. The only hydrogen that is truly clean is hydrogen produced via electrolysis using zero-carbon sources of electricity like wind or solar.
- Scaling up clean hydrogen production requires a massive increase in renewable electricity on top of what's already required to decarbonize the electric grid.
- Using zero-carbon electricity directly wherever possible (for example, to power electric vehicles and electric heat pumps) is much more efficient and cost-effective than using it to create clean hydrogen.
- Clean hydrogen only makes sense for end uses that are hard to electrify.
- Hydrogen cannot be substituted for natural gas in existing pipelines and other infrastructure due to safety concerns and high costs.
- Burning hydrogen should be avoided because this process produces nitrogen oxides, which are harmful to human health.

MORE INFORMATION

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