

CLEAN HYDROGEN HEARING

Thursday, February 10, 2022

Chairman Manchin's Opening Statement

- The committee will come to order.
- Before we formally kick-off today's hearing, I want to note that Sen. Barrasso isn't able to be with us today since he is back home caring for his wife, Bobbi. I wish her a speedy recovery and my thoughts are with their family today.
- Today the Energy and Natural Resources Committee will discuss the growing opportunities for hydrogen in our clean energy future.
- Clean hydrogen is a game-changing fuel that we can produce right here at home from our abundant resources and use it to decarbonize different sectors of the economy while supporting our energy independence.
- So I'm very excited for this conversation today and to hear from our witnesses, who are experts in their field. Thank you all for being here with us in person.
- This is a topic that has received a lot of attention from Committee members from both sides of the aisle and I know many of you are interested in the opportunities for hydrogen in your home states. And for good reason.

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- As I've said, clean hydrogen is a versatile fuel that has the potential to significantly decarbonize many sectors of our economy, including the power, transportation, and industrial sectors.
- We've made a lot of progress decarbonizing the power sector but the transportation and industrial sectors are harder, and clean hydrogen could be integral to getting at those parts of our economy.
- Now, when I say clean, I'm talking about all of the energy feedstocks and technologies that can be used to produce hydrogen, including fossil fuels, nuclear and renewable energy.
- With advancements in technologies, like carbon capture for fossil and electrolyzers using electricity, we can ensure hydrogen is produced from all of these domestic sources in the cleanest way possible, with low or zero-carbon emissions.
- Our industrial sector uses energy-intensive processes that today mostly rely on energy-intensive fossil fuels, but hydrogen can also deliver the heat required for these processes and has already been put to the test in refining and chemical plants.
- And with industrial sources contributing about 23% of U.S. greenhouse gas emissions, clean hydrogen can help companies tackle the challenges of addressing their thermal and electrical energy needs while also serving as a potential feedstock.
- I also believe that we must look for ways to clean up our transportation sector in an efficient way given that it is responsible for the largest amount of greenhouse gas emissions in this country.



- We should seriously be considering the potential of hydrogen use in vehicles and other modes of transport, like shipping and aviation. It's easy to see why there is a lot of enthusiasm for hydrogen. Clean hydrogen can be used to decarbonize our energy intense sectors, promote domestic economic prosperity and maintain energy security.
- However, we have some challenges to tackle in order to build a clean hydrogen economy.
- Producing hydrogen without emissions is two to six times the cost of current production methods.
- Also, retrofitting end-use applications to use hydrogen as a feedstock – from chemical plants to cars and trucks - will take huge investments from both the public and private sectors. This is the demand we need to develop hydrogen markets that can sustain themselves.
- The other big challenge is the safe and efficient transport and storage of large volumes of hydrogen given its physical properties.
- There is a lot of promising work being done in this space that will allow us to leverage our vast natural gas pipeline network to transport hydrogen to market. I know we will hear about some of those efforts today.
- As with many emerging technologies, we need to invest in the entire hydrogen value chain to bring down the cost and overcome deployment barriers.

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That is why I made research, development, and demonstration of these technologies a central part of the Energy Infrastructure Act, which this committee reported with bipartisan support last year and which was subsequently included in the recently enacted Bipartisan Infrastructure Law.

- In that bill, we fund \$9.5 billion in research, development, and demonstration of clean hydrogen and we task the Department of Energy to develop a national strategy and roadmap to get us to a clean hydrogen economy.
- This includes \$8 billion for hubs across the country to accelerate hydrogen production from all energy sources and facilitate its delivery and utilization across all sectors of the economy.
- This is an all-of-the-above fuel that can be made with whatever resource you have on hand.
- For example, we sit on an ocean of gas in West Virginia along with growth in renewables and, as of this week, the ban on nuclear power has just been repealed. We are also in close proximity to hydrogen end-use applications including power plants and refineries so we are well positioned for one of these hydrogen hubs.
- I look forward to seeing DOE get the hydrogen hub selection process underway.

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- The bill also includes \$1 billion for research and development to bring down the cost of electrolyzers allowing for cost-competitive hydrogen production from electricity.
We aligned this investment to ensure the Department of Energy has the resources needed to meet the goal of driving down the cost of clean hydrogen by 80% within the decade.
- And we invested another \$500 million in a manufacturing and recycling program to ensure that we can develop these technologies here and support the domestic supply chains needed to advance a clean hydrogen economy.
- More will need to be done in the future, but these investments are a down payment to innovating – not eliminating - our way to a cleaner climate.
- I look forward to hearing from our panel of witnesses on these topics and how we can take advantage of this exciting technology to power our future.
- With that, I will turn to Senator Lankford for his opening remarks.