

Special Meeting: Hydrogen Production, Transportation, and Infrastructure Task Force

Oklahoma Association of Electric Cooperatives, Oklahoma City, OK

Tuesday, August 17, 2021

9:30 a.m.

Notice was posted online with the Secretary of State on August 10, 2021. Public notice was also posted at the Secretary of Energy and Environment Office and as the Oklahoma Association of Electric Cooperatives on Friday, August 13, 2021 at 9:30 a.m.

PRESENT

Secretary Kenneth Wagner – Chairman

Senator Kim David – Co-Chair

Representative Mark McBride – Co-Chair

Representative Brad Boles – House Energy Chairman

Dr. Tomas de la Ruiz – University of Oklahoma

Terri Angier – Department of Transportation

Chris Neel (proxy)– Oklahoma Water Board Resources

Amy Walton – Oklahoma Center for Advancement of Science & Technology

Mark Willingham (proxy) – Oklahoma Corporation Commission

Secretary Wagner called the meeting to order at 9:33 a.m., confirmed proper posting of the meeting notice, ensured the presence of a quorum. Secretary Wagner moves to approve meeting minutes from July 19, 2021. Representative McBride motioned to approve the meeting minutes and Representative Boles seconded the motion.

1. Subcommittee Updates

a. Production

The production subcommittee is co-chaired by Representative Boles, House Energy Chairman; Julie Cunningham, OWRB; and Dr. Tomas de la Ruiz, University of Oklahoma. In summary, the production subcommittee meeting from August 11, 2021 discussed the following:

- a. Assist market uses subcommittee with identifying the top three to five potential near-term market uses, including onsite generation and resources
- b. Identity recommendations for legislation and/or administrative rule changes needed to authorize and regulate hydrogen distribution
- c. Identify safety regulation issues and recommendations for hydrogen transport methods, including truck, pipeline, and barge and for end uses
- d. Review available existing infrastructure and identify implications for existing network and energy markets, including blending in pipelines and providing multi-fuel stations
- e. Develop general cost estimates and review other pertinent impacts not previously identified

- f. Participate in and monitor opportunities within current U.S. Department of Energy research initiatives for studies of hydrogen in Oklahoma, such as carbon reduction or optimal natural gas blending percentages
- g. Identify timelines and recommended steps toward the goal of Oklahoma being a hydrogen producing state and identified as a national hub

Representative Boles mentions the opportunity presented by the federal government of establishing four hydrogen hubs across the nation. He continues explaining that the production subcommittee meeting is asking and examining what can Oklahoma do to be one of those four hubs or better position the state in the hydrogen market. With becoming a hub, this allows more supply-chain in Oklahoma and opportunities for economic growth. The subcommittee would also like to examine what separates Oklahoma with competing states to better position ourselves in the hydrogen market. It was discovered through the subcommittee meeting that we have companies already producing hydrogen in Oklahoma, and one of the goals is to see what we can learn from those groups. Oklahoma's strengths of becoming a hydrogen hub include being large producer in natural gas, being third in producing renewable energy, having a robust water supply, the capability of GIS mapping of all resources, and more. In developing this plan and information, this roadmap can help Oklahoma in becoming one of the hubs mentioned in the federal Infrastructure Bill.

Chris Neel, proxy for OWRB, continues the topic by explaining how the subcommittee is looking at where does the group start when asked about production of hydrogen, and where is water available to allow production. This then drives the conversation to what infrastructure needs are necessary, along with what other variables the group needs to research to make hydrogen. The subcommittee also discussed what new regulations are needed, if necessary, when producing hydrogen and byproducts from that may be factor in the process. OWRB has a competent GIS staff which will allow the OWRB to help identify some of these needs.

Dr. Tomas de la Rubia comments on the potential opportunity with the Department of Energy calling for two of the four hubs, with \$2 billion each, needing to be an oil and gas producing state, which is an advantage to Oklahoma. The DOE's course of proposal comes out in 6-9 months, and the DOE requires partnerships between private entities, states, universities, and national laboratories. Dr. De La Rubia stresses on the importance of partnerships. Since Oklahoma does not have a national laboratory, the state needs to be strategic and aware with pursuing to be a hub. OU is also working OSU and thinking about advance hydrogen production and the necessary course of action and the requirements for a future market including technologies.

b. Off-takers and Market Uses

The off-takers and market use subcommittee is co-chaired by Amy Walton, OCAST; and Matt Newman, Hydrogen facilitator and coordinator. Amy mentions the

importance of identifying opportunities and barriers from production to utilization in hydrogen. The off-takers and market use subcommittee discussed:

- a. Analysis of existing companies and identify end user for development of ecosystem of hydrogen production to utilization
- b. Low hanging fruit – industries already expressing interest in market utilization
- c. Identify and quantify the top three to five potential markets for hydrogen near term and long term
- d. In state utilization has limited market but ability to export holds the biggest market opportunity – need further review of regulations regarding export hydrogen

By identifying the opportunities and barriers, along with existing companies in hydrogen in the state it will help to create an ecosystem from the production to the end-users. In the subcommittee's meeting, there was much discussion on transportation (vehicles, drones, planes, i.e.), storage, power generation, and ports and barges. Amy emphasizes Oklahoma needs to be looking into being a net export and keeping that in mind for the long term.

Matt reiterates that Oklahoma is a net energy exporter. Hydrogen activities are happening across the nation from the west to the east coast. However, there is much happening in the middle too. He shares that Mitsubishi partnered with gasifier in North Dakota to converting facility into a hydrogen production facility to power a Mitsubishi combustion turbine. Oklahoma does have the opportunity to bring hydrogen in the energy mix.

Secretary Wagner adds by saying how he understands that many private companies have engaged in forms of a partnership of enterprise and or research that do not allow groups to disclose those projects. However, the task force hopes to be able to tap in resources in ways that do not cause any harm or breach but may contribute to the overall conversation of hydrogen in Oklahoma.

c. Distribution and Infrastructure

The distribution and infrastructure subcommittee is co-chaired by Terri Angier, ODOT; and Brandy Wreath, OCC. Terri identified objectives from the subcommittee meeting, which include:

- a. Review and recommendations associated with legislation for authority to permit and regulate various distribution pathways
- b. Review and recommendations associated with safety regulations for hydrogen
- c. Extensive network of intrastate and interstate pipelines provides an advantage for Oklahoma

- d. Participate in and monitor opportunities within current U.S. Department of Energy research initiatives for studies of hydrogen in Oklahoma, such as carbon sequestration and optimal natural gas blending percentages

The committee is looking in the blending aspects and how to work together to make this happen. Research into permits of what is required long term and the temporary use of trucks, rails, barges, and carrying of what is produced and how it impacts infrastructure.

Mark Willingham, proxy for OCC, continues to talk about support and input from all stakeholders. Within the OCC divisions –such as oil and gas, petroleum storage, transportation, and public utility divisions— hydrogen will impact all these groups. Mark identifies that federal and state safety regulations will need to be reviewed and considered to understand and know needs to be amended and changed, along with research on hydrogen and current pipelines and how they affect operators. Based on the subcommittee meeting, blending capabilities may range from 1% to 20% and this will be something the group will be looking into.

Secretary Wagner stresses the importance of regulatory items and understanding rulemakings to help with motions for the next legislative session and the future. One of the most important and set in motion the regulatory and statute approach on safety. This will allow Oklahoma to produce a regulatory framework for hydrogen and help Oklahoma put its best foot forward in making its case to the DOE.

d. Economic Opportunities, Taxation, and Incentives

The economic opportunities, taxation, and incentives subcommittee is co-chaired by Amy Walton, OCAST; and Brent Kisling, ODOC. The subcommittee discussions included:

- a. Direct connection to market use committee—identify top market use and begin incentive construct based on top markets
- b. Define hydrogen production identify potential surface transportation refueling revenue potential
- c. Determine neighboring states' tax and incentive structures

It was revealed that it is hard connection with market use, so it is hard to discuss tax and incentives without understanding the use of hydrogen. Also, identifying the potential top uses of hydrogen in the state to utilize what is in front of us and examine what we can engage in today. Amy adds that discussion of defining production will help transition and investigation of surrounding questions that include: can production of hydrogen be defined as manufacturing to see if new taxes and incentives are necessary with this emerging market? Is it an ad valorem? What about fueling tax? What is the end-user being taxed on? These are questions and considerations the committee hope to further discussion and better understand as

the market emerges. Also, the subcommittee will be researching the tax structure that surrounding states may be putting in place to help set Oklahoma up to compete with neighboring states.

The next subcommittee meeting has been scheduled on August 25 and the next task force meeting will be on Monday, September 13. Secretary Wagner emphasizes that all of Oklahoma benefits from supply chain and how all industries can play a role in those hubs. He invites all parties to provide information to help weigh facts and competitors, and to be honest about considerations such as resources and geography. For examples, although North Dakota may have gasification to produce hydrogen, the state does not have a great location. So, it is important to identify competitors and then be able to see how Oklahoma can be most competitive in all the market. The goal is to find out how do we put our best foot forward for Oklahoma, and the bigger play of Oklahoma continuing to be an energy state.

2. Public Comment

Matt asks for all speakers to keep remarks limited to 2-minutes and opens the floor for comments, ideas, and thoughts to the audience.

Josh Linton, ONE Gas— shared that in discussions regarding the colors of hydrogen and participating in a study on production of hydrogen, he wanted to know what viewpoints the task force had on dedicated renewables when talking about hydrogen production.

Secretary Wagner....

Robert Hefner, Hefner Energy— shared that some points from the meeting may already have answers. For example, California dominating 95% of the market of hydrogen and to look at the taxation and incentives of how they structured vehicles and the goals of having net-zero emissions. California has 50 incentive structures, while Texas trails with 7 incentives.

Matt adds that emissions from mobile sources is at 35% on the national level, while California has 39% of their emissions are mobile sources.

Robert mentions the geographic structure of Salt Lake City and how it is a sunken basin that is surrounded, which affects the air quality in the area.

Usha Turner, OG&E— provided a comment of support to the task force and its efforts, along with emphasizing that not only is Oklahoma known for oil and gas, renewable production, but also one of the few states with the lowest electricity rates in the nation. Also, with comparison to neighboring states during the winter storm of February 2020, it revealed the state's access to redundancy and resiliency around electricity to supply, availability, and affordability. These are considerations when talking about hydrogen

production. Hydrogen is highly talked about on a national scale. She is excited to see Oklahoma in this space.

Terri reminds all participants to send information and research to the hydrogen email.

Meeting was adjourned at 10:04 a.m.