



# Illinois Department of Commerce & Economic Opportunity

JB Pritzker, Governor

## Hydrogen Economy Task Force

January 14, 2025

8:30 am to 10:00 am

Minutes

### Location:

Virtual WebEx Video Conference

Meeting link: <https://illinois.webex.com/illinois/j.php?MTID=m92c238066d5ae86939d9c8e358ae293>

Meeting number: 2634 424 1764

Password: epNpF3zmT37

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Access code: 2634 424 1764

Host PIN: 2827

I. Call to order at 8:31 am.

II. Roll Call of Membership by Aaron McEvoy.

Rep. Terra Costa Howard: Yes

Sarah Duffy: Yes

Patrick Evans: Yes

Rep. Bradley Fritz: Yes

Jim Hoyt: Yes

Dan LeFevers: No

Carly McCrory-McKay: No

Chad Parker: No

Laura Roche: Yes

Dr. Petros Sofronis: Yes

Michael Wang: Yes

Patrick Devaney: No

Sen. Laura Ellman: Yes

Kyle Freeman: Yes

Jon Horek: No

Elizabeth Irvin: No

George Letavish: Yes

Dulce Ortiz: Yes

Sen. Sue Rezin: Yes

Doug Scott: No

Catherine Stashak: Yes

Dana Wynn: Yes

III. MachH2 News

Presentation was given by Neil Banwart and Elizabeth Kocs on Midwest Alliance of Clean Hydrogen: Delivering on the Promise of U.S. Department of Energy's Clean Hydrogen Hub Program.

Sarah Duffy said this is good information to have and I did attend the DOE posted event a few weeks ago too, so that was also informative. I am wondering what outreach your group has done to Illinois government agencies thus far, whether that is the governor's office, local counties, in Illinois EPA, other than, attending these meetings occasionally. I know Michigan government the EGLE is kind of in the consortium, so obviously they have kind of a representative that way. I am just curious what engagement you all have done with Illinois specific state government?

Elizabeth Kocs replied saying, we have been engaging with the state level. We have had multiple meetings with them and currently our CEO Dorothy Meeks with each of the governor's offices on a monthly basis to provide updates as well as provide get any input from the governor's offices. So that is been ongoing. And obviously, I have been to this meeting a few times as well, so we are actively ensuring that we are communicating at the state level. When it comes to the projects themselves, if they have communication with others at the state level, then that is been part of their, their goals and activities, but it has not been part of the hub level. Neil, did you want to add to that?

Neil Banwart said, no, I agree, that is you know having the individual calls with representatives from each state has proven beneficial, and I think it will be more beneficial as we move into phase one, as we do our feasibility, as we do our site selection, things of that nature. So, I did not really touch on this, but the map that I showed are the preliminary sites, right? That is the proposed, but it is subject to Nipa, to a lot of other things, and so that is really one of the activities that we are focused on certainly in the next year.

Dr. Pertos Sofronis question was a follow-up to Sarah's question, what about reaching out to the universities in the state or of the region? For instance, I know the University of Pennsylvania is working with the Appalacian hub. What about you? Are you working with any university around here? For instance, I am talking about the development of transcript able certificates, and so on and so forth. In other words, I am talking about tracks within existing programs, in mechanical engineering, in electrical and computer engineering that are related with the existing technologies as they operate. And for future technologies based on the on the experiences that we will get out of the operation on the MachH2.

Elizabeth Kocs said, that is part of the plan. So, in phase one, this is where we are developing what that relationship will be, how to best collaborate with the different workforce development organizations, universities, community colleges and those will likely differ across the states as well. And so, so at this point that is part of what will be completed by the end of phase one is to have a good sense of what role each of the universities within each state will be playing. They will be part of the planning process there we will be having a focus area on workforce development. It is a very strong focus. A lot of our commitments are around workforce development, so it is going to be very important that the planning process itself will be inclusive.

Senator Ellman recommended that when you are reaching out to stakeholders on safety and emergency response on education like we were just talking and workforce, there are members of this task force who are informed and engaged and would probably be great candidates to reach out to. The email Neil and Elizabeth can be reached at is [community.benefit@MachH2.com](mailto:community.benefit@MachH2.com).

IV. Approval of November 12, 2024 Minutes

The minutes from November 12, 2024, were not voted on to allow for additional edits from Dr. Michael Wang to be made and redistributed and voted on at the next meeting on February 11, 2025.

V. Chair Report

Senator Ellman I just want to alert you to some news, clearly since our last meeting, the MachH2 phase one has begun. Also, in the last two or three weeks, the Treasury Department has finalized their 45V rules to allow for nuclear power and some blue natural gas with carbon capture. One of the items in the press release of that report's publication was that there are other measures for states that have got RPS goals that would allow for greater or maximization or optimization of those incentives, and they specifically called out the states of Washington and California as meeting the qualifications for maximizing those benefits or those incentives. I do not know where Illinois falls short regarding RPS standards and if anybody has further information, I welcome it, but I will be looking for more information and I will try to have that at the next hydrogen economy task force meeting of specifically the RPS state level RPS or clean energy requirements and how they fit with 45V.

Jim Hoyt said, I have not read through all of it. I was curious whether there were performance measures that went with that. So, were there were there if you have a standard are there and performance criteria that would have to be evaluated in order to maximize that valuation? So, because it is one thing to have a standard but then it is another to perform, right?

Senator Ellman said, exactly, reality versus aspirations.

Jim Hoyt said, that would be if we take an action to dig into that, that would be something maybe to take a look at.

Senator Ellman said, yes, to see if states are on track for achieving those requirements.

VI. Old Business

Senator Ellman mentioned that there was no old business to discuss at this time.

VII. Task Force Administrative Business:

- Annual Report

Senator Ellman said we have a report due; we gave ourselves until mid-February and already it is mid-January. There have been a couple of people who've been talking about potential items for the report, and I would like to share them with you. And then for those members of the hydrogen economy task force who would like to provide content to the report or if there are additional topics from the ones, I am about to list that you would like included in the report, please reach out. We are going to do a lot of interacting via email between now and February. So, if there are things that you would like to see added to the report or if you want to add stuff yourself, please do, and contact Aaron and copy me if you would like. One of the things that we kind of want to frame, we talked about how we frame this and, we would like to talk about the assets that Illinois has with regard to a hydrogen economy. We all

know what our assets are. We have got a great nuclear fleet, we have got transportation, we have got industrial, we have got agriculture, we have got a workforce, we have got a great... the list goes on and on. So that kind of framing will be part of the report. And then if there are any critical bottlenecks, if there are any gaps, what do we need to do to close those gaps or open up those bottlenecks and achieving our full potential. So that is kind of how we are going to the frame these and the topics that will be doing that about are, in no particular order as of yet carbon, hydrogen storage along with carbon storage, the kind of are there is; context with carbon storage there, reliability of the grid, as power is used for hydrogen along with the context of other loads on the grid; projected loads on the grid, like data storage, electrification, EVs and buildings. How to incentivize the use of hydrogen across the state? What are those mechanisms going to look like? And then a discussion of those potentially uses transportation, industry, agriculture ammonia, a little bit more on 45V once we have some more of those answers, the state of Illinois role with MachH2. Sarah, you asked a great question, we would like to flesh that out as well within the report. Education and training around hydrogen and there are a couple of aspects about this. Our last report touched on this as well. There is education to the general public about hydrogen. There is education to affected communities about hydrogen. But then there is also education for workers. There is education for emergency response and education for other people who will be actively participating in the hydrogen industry. And kind of along the same lines if state and MachH2 whether we want to talk about having a central location or a contract or like an office, so to speak, that is an air quotes of hydrogen, a one stop shop. We will share this list of topics with the task force via email.

- 2025 meeting topics

Senator Sue Rezin added that Senator Ellman mentioned one talking point about looking at a report about the load and hydrogen and all of that and data centers. I work on the national working group for data centers through NCSL and we are doing a resolution talking about the exact same thing. To your point, I think we need to understand how this is all affecting the load that is out there. I do not know if there is any ability to work together in the same report to review and analyze all of this versus just the data centers in one silo and then this in a different silo.

Senator Ellman said we should touch base offline because I am a member of the CSG group on water use.

Senator Sue Rezin said I just feel with what we see going on in energy right now and the huge need, but this exciting what is going on with hydrogen and maybe your team can tell you that it is already being looked at. But instead of having several different reports looking at several different areas, for me as a legislator, a comprehensive report looking at all the above that we are working on in one report so because obviously they affect all of the other different areas. Just a suggestion.

Senator Ellman said that is a good point and so many of these things are connected and dynamic. It is good to have gotten a MachH2 update so that we all know what those nine projects are, where they might be located. It will be interesting to see what those timelines are because the timelines of those

other things that are happening as well, carbon storage, data center, taxes on the grid are all going to be happening also. So, this will be interesting the next few years will be really interesting.

Sarah Duffy added to the reliability and load piece as possible most of IPA along with ICC are tasked with doing a reliability study in 2025. So maybe in the report we could just include some recommendations about how to include MachH2 and other hydrogen development potentially in that study. I do not know whether the current... technically includes it directly, but maybe we could kind of recommend it more directly in the report or something.

Senator Ellman said, to be frank, I have not seen estimates for power that would be diverted to electrolysis at this point.

Sarah Duffy replied yes, the DOE joint hosted info sessions that they had in December. They said the kind of proportion of electrolysis versus nothing reformation versus other, the pink hydrogen they could not provide kind of a scale estimate for each type. So, it will be very hard to predict the load impacts without that information.

Senator Ellman said, having that unknown kind of gives comfort because that might mean that we are still early and there is time to make those estimates.

Dana Wynn mentioned, that for the topic of the general public and community awareness piece, I do want to mention that through my participation in the USCPA region five is collaborative problem solving that CPS model that we heard from Dr. Kocs about last year. I protect participated in that over the last nine months of 2024 and we just kind of wrapped that up over the weekend. One of the things that they did bring to our attention as participants, which there was kind of a variety of participants, there were some people from government agencies like from the state agencies in Illinois that is not how I was participating. Because I was intending to participate as an advocate for my community so as were several other people in it. But I do want to share with you that in the whole session, they did share about a framework for community benefits ordinance and that that has already passed in a couple of cities in Michigan. So, I just wanted to bring to your attention that is something that is a potential to possibly conflict, or it could be aware of for members of the task force. I think that will be a conversation with the community participation, right? As far as that environmental justice and that two-way engagement street, so I do not know how that might affect any kind of the recommendations or kind of considerations for our task force necessarily, but it might kind of wants the work gets going in the communities and possibly for the MachH2 two groups.

Senator Ellman said that is interesting and asked Dana to write up a summary of what that whole thing is about and then possibly share it with the rest of the task force?

Dana Wynn said, sure, I Sure, I believe that I have one of the community benefits ordinances that did pass in Michigan. I think I might have a copy of that from the USCPA region five folks in an email as an

attachment that I could certainly include with the write up and I guess I will just share it with Aaron for him to share with the task force. I will definitely do that.

Senator Ellman said that would be great. Then asked if anybody else had any potential topics? Now is not the only time to add, please, if you have any thoughts on the matter, forward them to Aaron. He's the clearinghouse for report information. A topic I had in mind came up when Neil was talking about showing the map. I do not know if people are ready for it yet, but it would be nice to take a field trip or two, possibly for the task force to see project next in action. I would like to throw that out there. And then obviously I mentioned the 45V and state RPS news.

Dana Wynn said she would like to know about any interest in expanding. I am down in East St. Louis in the Metro East area across from St. Louis. I know that we have the Bayotech facility that is in Chesterfield. It is less than an hour away from me as actually probably even closer to my office. So, Chicago's in a different travel corridor as we are at the southern tip of that, right? We are in this crossroads of every major US travel corridor at the southern kind of tip in the same Midwest section, so that is definitely an interest for me. And then also there was an announcement in the Illinois Business journal. I believe it was in November. I can send that link to Aaron as well, about sustainable aviation fuel, it is a private investment and there are two companies that have invested. It is almost \$1,000,000,000. One of them is Chrisillus and I do not know the other one. I think it is in the article from the Illinois Business Journal. My coworker shared it with me, and it had some information about electric vehicles as well but so there is a pretty big investment coming to east St. Louis in the Metro east. But then there is also this Bayotech facility, so I would like to know how the MachH2 hydrogen hub could consider expanding to that area because I know that we have slick that is in our area and on our campus, but there is lots of community colleges specifically down in this region, definitely university as well.

Senator Ellman said, thank you, I am going to just throw out another potential topic, sometime maybe mid-year, I would like to have somebody present on new developments on the use of hydrogen. Neil mentioned concrete and I know that concrete is an admitter of carbon dioxide. I do not think I have heard of concrete and hydrogen in the same sentence before, so that is something I would like to learn about, but I would want a broader picture. Are there new developments in the people using hydrogen to decarbonize in new ways or have advances been made?

Senator Sue Rezin said I do not know anything about that technology, I do think it is an interesting, fascinating, area to look at. I can just tell you in general, and I do not know their technology, Ozinga used carbon free, I use that loosely, carbon free concrete so or reduce carbon whatever for the concrete that they use to build out the metadata centers into DeKalb. So, I do not know if that is the technology you are talking about. I do not know what they use to reduce the carbon to inject it, I think. Again, as you can tell I am not an expert in this, but it is fascinating to me, and I would like to learn more about it.

VIII. Task Force Members information share

Catherine Stashak said, I do not know a lot about the details, but just in the journals that I read related to fire resistant construction and all kind of stuff there is a new technology out there for a concrete that has reduced carbon footprint. So, I will see what I can find in my library downtown and I will copy and scan and send it out to you all.

Senator Ellman said, Senator Rezin, you touched on something that might be useful for the rest of the group, and that is kind of just the basics of how hydrogen is used. I know of two technologies, combustion and fuel cells. I do not know if there are other ways that people use hydrogen. To be frank, I do not really know how those combustion and fuel cells really work. So maybe just a little, you know, maybe not hydrogen 101, but maybe 102. How hydrogen is used?

Jim Hoyt said, I love that you mentioned the hydrogen 102 and I think you would throw in the mix how it maybe you say an SAF manufacture, right? Because it can be used as an input right in into those processes rather than a fuel itself. But so, I think that would be awesome especially with all of the different Illinois, we are fundamentally in agricultural state right and SAF has a fundamental linkage to that, and I am not just saying that because I work for ADM, right? But that is just the way it is. I think our future is tied to SAF and hydrogen has a pretty big role in that. I would also offer at some point later in the year if it is worthwhile, if there is interest to potentially provide the task force with an update on our own CCS project. We have had some different challenges in the last year and being kind of one of the first folks out there to actually do this at scale, had a lot of learnings and we are continuing to work to implement those learnings and I think we will have a lot of good technical lessons learned type information that we will be able to share as we get further into the year, we have been working hand in hand with, with EPA and technical experts in the industry. So, I would love to love to be able to share that with, with your group because again that is there is linkage between carbon sequestration and hydrogen usage depending which hydrogen that you are making, right? So, I think that might be of some interest I think to the team.

Chad Parker said, you mentioned some of the uses of hydrogen. In general hydrogen is normally used for fuel cells as well as energy, but it can also be used for synthesis. Hydrogen is an input in chemical synthesis as well. A lot of industries will use hydrogen for their source inputs just like Jim just mentioned. I think that is a wonderful idea to get somebody in, I know a little bit about the chemical aspect and the physical aspect of fuel cell systems, but I think it would be a good idea to have somebody that actually truly knows them in depth to give us a better discussion.

Dana Wynn said, I did think of one more that might be somebody good to reach out to and we have sort of already heard from Ray Ziganto from the Illinois Manufacturing Excellence Center. But I know that like the IMAC and IMA the Illinois Manufacturing Association. I know both of those groups work together and I have kind of been in contact with them probably over the last year or so and in different capacities have mentioned hydrogen to them. That was definitely a topic at our clean energy jobs for the future panel, at our session at the high triple CA conference in November. So, they are very aware, but I know that in the past and other kinds of clean energy or emerging technology areas, they have

had some stake where they have done some of their own kind of deep dives into what that workforce side. So that might be something that if we invited them to kind of come to a meeting as the center presenter kind of in that capacity instead of on a panel necessarily, they may have some really good input as well in addition to other things that we have already learned from them.

Senator Ellman said, that is a great idea. And I wonder if labor can join in that conversation too. That might be a really interesting topic.

Senator Rezin said, we hear a lot about in the transportation space about decarbonizing, which we all agree needs to happen. Especially for the trucking industry. I am not quite sure cause there are people that feel that we need to have batteries for trucking and then we have the argument for hydrogen. I think I would like to hear from an expert, maybe in the actual world transportation world, the trucking industry, if they could sit and maybe have a conversation with us about the pros and cons of this and a practical, application and where the pain points are.

Senator Ellman said, I think that is a great idea because there are two camps and there might be, the world might be big enough for two technologies, so, to see that objective comparison on transportation.

Senator Rezin said, to see it from the people who are actually using it. Maybe you could do the same from the end user who potentially is looking to buy. What are they looking for? What do they see as a challenge? Cause we're making a lot of assumptions here? Just the fleet managers, but we could maybe go into the other applications too, not just with trucking, as we make assumptions that if we produce, they will use. Maybe it is the challenge still is this or that, that we are not thinking of that you and I will hear in Springfield once this becomes more commercialized.

Dr. Petros Sofronis said, here at the university we are developing now a simulation platform in which will predict theoretically, what are the advantages and disadvantages of using hydrogen and fueled tracking or battery and fueled tracking. So, we are developing as we talk right now and we stop started in fact by using our highway network that we have in the state by having various refueling stations at various nodes of the highway network and seeing for instance how the various tracks are moving around this network starting from Chicago going down to St. Louis or starting from Indiana and passing and going to Iowa. See how many hours they spend before fueling if they are battery electric or hydrogen fueled truck and so on and so forth. We try to develop metrics for instance hours of operation, for instance, a battery electric in order to recharge may take 5 hours, whereas the hydrogen fuel cell truck may take just 15 minutes and also the impact on the emissions. So, I think by the end of this academic semester that starts in a week we will have, I believe nice simulations to show you.

Dr. Michael Wang said, to add to what Petros said we can you know bring on top experts in this area give for this test force while hydrogen also production and end use. We have been working in this area for DOE for 20 something years of course the end use is continue evolving air area we are examining marine aviation and the rail besides on road transportation industrial sources. So, the DOE roadmap



layout is different that we have our top expert deeply involved in the completed an ongoing effort in this. So, if we identify a time, update at how long the one briefing will be or we can work with at the GTR of course working in this space to the three organizations kind of put something together for this task force.

Gabriela Garza of IMA said, I know this came up last in November, last meeting and unfortunately, I wasn't able to be on here, but I want to be fully transparent. This is actually an issue that I am working on with one of our companies. One of our member companies is working on transitioning to hydrogen fuel cell trucks as we speak. One of the biggest issues that they are running into is a ten to 15 % payload decrease from diesel counterpart trucks because hydrogen trucks are heavier. So, we are working on an initiative for this upcoming spring to increase the weight limit for hydrogen trucks to make it the same as natural gas and propane gas, which is a 2000-pound limit increase. You know they will still be missing out on some of that payload, but they are at least getting 2000 more than they would have under the normal standards.

Senator Rezin said, that is a good point. Even if you raise it, 2000, are you still able to move it on the road? That is not something I thought about actually. Is it still enough by raising it Gabby cause you say we are trying to raise it, but it is easier said than done, right? Cause we have been trying to raise some of these weight loads, so I am just curious as to how much you need to make this work to move the product on the road? Or does it all have to be via pipeline? Oh, no, if they are using it, ok. So, can we raise, can we raise the, the limits enough to make this work?

Gabriela Garza said, right now hydrogen trucks are about 5000 pounds heavier than their diesel counterparts. So, then they have to reduce their payload by 5000 pounds, which creates inconsistent payloads or the back-and-forth transportation of goods, and then they are also going to have to be doing more trips to accommodate for the amount that they are decreasing. So, it is a 5000 difference, and we are only increasing hydrogen trucks their limit by 2000. So, they will still be missing about 300 pounds if we're able to get this initiative through. But we are trying to compromise and see how we can accommodate the transition to hydrogen fuel fleets.

Senator Rezin said, if you still have to decrease by 3000 pounds, what does that percentage of less product that you are moving? What does that equate to? Because obviously at the end they are losing business, which means your prices are going up essentially because you are going to have to use more trucks to move it.

Gabriela Garza said it is about a 10 to 15 percent decrease. But there is a cap 2000-pound limit increase because that is federal standards, and we cannot go over that. I can answer any more questions, it is kind of more of a complex issue than I thought.

Senator Ellman said, we might want to devote maybe a longer meeting or maybe a couple meetings on transportation to really do a deep dive into that. And if we look into battery technology versus hydrogen, and we want to talk about fueling infrastructure, there is a lot there. And then of course we

are just talking about trucks, then there is rail, there is maritime, and then there is port operations as well. So, that could be a series potentially or it might turn into a nice, maybe one day field trip extravaganza.

IX. Audience Comment Period

Tina Harth said, at WSP, we have actually presented several presentations on the discussion of decarbonization for our Illinois transportation agencies. We work with many of them on a daily basis and this is definitely a major topic of discussion with many of them as they are starting to get into kind of the electric fleet transitions, but also considering hydrogen transitions as well. And so, I do think it is a very relevant discussion for kind of our transportation industry on the kind of this debate between electric versus hydrogen and how our transportation agencies can start to make those decisions and how they can plan for their strategic futures. So I did drop in the chat a white paper that we recently posted on our website, that just kind of gives actually a very brief overview as well as like an infographic kind of breaking down the two options, between electric versus hydrogen, and so it is a really interesting discussion point, but if it is something that the task force would like a deeper dive on in terms of a presentation, we have been presenting this all across the state to various entities and would be more than happy to do that.

Aaron McEvoy mentioned that the next meeting actually will be on February 11th. Should be the second Tuesday. So, I will make sure I get that out there. So, this will be a fast turnaround for minutes and everything else we should. I will double check with MachH2 regarding their presentation so we can have a copy of those slides, I hope. So put on your calendar for February 11th 8:30am to 10am, if not earlier.

X. Adjournment.

The adjournment of the meeting was motioned by Rep. Terra Costa Howard. Second by Dr. Petros Sofronis at 9:42 am.

Future Meetings

- a) Tuesday, February 11, 2025 at 8:30 am