

**Northwest Power and Conservation Council
Fuels Advisory Committee
October 2, 2024**

Tomás Morrissey, NWPCC, began the meeting at 9:00 am. Chad Madron, NWPCC, explained how to best interact with the Zoom Webinar platform. Morrissey greeted the room and discussed the agenda.

Hydrogen Load for Non-Power Uses

Dan Kirshner, NWGA, asked how hydrogen for non-power uses factor into the Power Plan [Slide 11]. Morrissey said that will be discussed on the next slide. He explained that the goal is to try to estimate how much additional electric load the system might need to provide for hydrogen for non-power uses.

Erin Childs, Renewable H2, asked if staff are making any assumptions around project configurations and co-location with renewables [Slide 12]. Morrissey said that is a possibility but didn't know if the model is granular enough to capture it.

Childs said she is seeing a co-location trend across CA and TX to minimize grid interconnection. She noted that this reduces the net load on the system which makes it important to understand transmission as well as the renewable impacts but admitted that teasing the two apart will be challenging. Morrissey thanked her, calling that one a layer deeper than what he was thinking about so far.

Clay Riding, NW IW, wrote: Location will impact transmission in the question pane. Jennifer Light, NWPCC, answered: Agree. We are going to do our modeling in multiple zones (17) in the region to, in part, understand transmission impacts. The load forecast will be done by balancing authority, and so we will want to capture the impact on load by location, to the extent possible.

Rebecca Smith, Transformist, asked if staff are also considering including electricity needed for storage, noting that storing hydrogen in gas or liquid form makes a difference [Slide 14]. She then said she is assuming staff is not including the electricity needed to produce ammonia or methanol fuels. Morrissey answered that he is not thinking about the electricity needed to store hydrogen but is assuming that it is gaseous storage.

Smith asked about the energy needed to turn the hydrogen into ammonia or methanol. Morrissey was not sure if that would be picked up in the general industrial load forecast or as an addition to this work. He asked for more information about the energy needed for this.

Steve Simmons, NWPCC, said the breakdown of transportation sectors will be key to the load forecast. He pointed to hydrogen used for trucking as opposed to battery electric. Simmons then called the upcoming electrolysis method a single large load that will compete with data centers for renewable electricity.

Gurvinder Singh, PSE, pointed to IRA requirements for additionality. He was curious how that would affect renewables for producing hydrogen, saying it would almost require building a dedicated plant. Singh said, conversely, you could choose to not take the incentive and just take what's on the grid, wondering how that would be analyzed. He then noted that there are other, more effective forms of hydrogen production and wondered if they would be taken out of the modeling as they make their way through the system.

Morrissey said they are curiously waiting for the final rule making of the 45V tax credits, noting that there is also hourly matching along with additionality. Morrissey then addressed Singh's question about more effective ways to create hydrogen, saying the idea is to take a carve-out but was not sure what that would be. He asked the group for insight on this.

Childs reported that there will be an update on the rulemaking in December, but most of the discussion right now is around the need for near-term flexibility as opposed to long-term principals and creating a gold standard around climate impact. She said there will be a need for more electricity to produce this hydrogen and most people want that electricity to be from clean energy sources.

Matthew Doyle, NW Natural, asked about the plan for transporting hydrogen [Slide 16]. Morrissey said it depends on the project, saying he thinks some NW Hydrogen Hub projects create the hydrogen close to the project but added that there is some level of pipeline discussion happening with the other projects.

Childs confirmed that Morrissey is looking for electrolyzer load profiles and shapes [Slide 20]. Morrissey said yes, wondering if they run flat like a data center. He said there will likely be demand response assumptions around the electrolyzer load as well.

Childs asked if the plan is to put a fixed load profile into the model. Morrissey answered yes but pointed to an opportunity for Demand Response. Childs wondered why staff planned to artificially fix the load if it has flexibility. Morrissey said most load profiles enter the model with a fixed load with the flexibility happening on the resource side.

Simmons added that it would be helpful to know how flexible the electrolysis load is, if it needs to run on a baseline or if it can be flexible.

Childs said the US market is still evolving in this space, but international developers report that they are making intentional design choices to follow renewable production profiles and capturing lowest cost energy. She said the goal is to operate at a 60-80% annual capacity factor, including limits within the week or month, to meet targets. Childs said

because of this they don't fix dispatch energy storage profiles anymore as it underestimates the flexibility of energy storage. Childs acknowledged that the models are catching up but thought it would be good to be explicit about potentially underestimating the potential flexibility of electrolyzers and associated loads.

Doyle noted the agnostic approach about the end use of hydrogen along with the limitations of models and tools but wondered about the tradeoffs of using hydrogen for space heating or winter peak versus industrial purposes. Morrissey called that a good point, pointing to Simmons' earlier point about hydrogen for medium to heavy duty vehicles potentially offsetting electrification for these vehicles. He said this might call for more nuance than originally thought. Morrissey said the Plan will not have a detailed hydrogen analysis but agreed it might need more nuance.

Simmons said past Power Plans made some assumptions about using hydrogen for trucking and the goal is not to assign too much load to battery if it is being replaced by hydrogen.

Fuels Pricing in the Ninth Power Plan

While discussing LNG exports, Johnson reported that Costa Azul is [experiencing a slight delay to the spring of 2026](#) [Slide 32].

Fred Heutte, NW Energy Coalition, spoke about the size, scope, and progress of the LNG Canada facility. He said they will start sending out commercial quantities in the first quarter of 2025. Heutte wondered what will happen to the price differentials due to the project, admitting that he doesn't know. He said there are other BC LNG export facilities moving forward as well.

Johnson agreed with the presented production numbers, saying most exporting entities have production ready to go into the pipeline. He said this needs to be followed closely, noting that the forward curve at Station 2 and AECO isn't reacting heavily. Johnson thought that this was due to the expectation of ramping production. He did say there will be some volatility and supported Morrissey's plan to introduce volatility into the model.

Riding said that BC production looks the way it does is because of the export capability, he thought Woodfibre would be the most impactful but pricing for LNG Canada should not be onerous to the Pacific Northwest. Riding then predicted that the Costa Azul plant would affect CA more than the Pacific Northwest.

Kirshner commented that this is an infrastructure issue and not a supply issue. He pointed to dedicated infrastructure, noting that Woodfibre is at a hub and could cause an impact until the T South line is expanded in a few years.

Morrissey thanked the room for the input saying it's hard to figure out what to put into the forecast and will be asking for more information about impacts.

Kirshner addressed Morrissey's comment on how to figure out price volatility and ahead purchases, saying the gas utility side does purchase gas adjustments every year and then back casts to true it up [Slide 36]. He said this smooths what occurs and asked if there was a similar process for utilities that use gas for generation fuel.

Morrissey asked if those documents go to the utility commissions. Kirshner answered yes for residential and commercial customers, calling it a reflection of what gas utilities pay. He thought the IPPs and IOUs might not have publicly available documents.

Johnson offered to walk Morrissey through NW Natural's process offline.

Morrissey thanked the FAC, noting the price survey will be sent out at the end of the month. He noted that Committee members could provide feedback via email, and ended the meeting at 10:34 AM.

Attendees via Zoom Webinar

Tomás Morrissey	NWPCC	Stephanie Celt	WA Dept of Com
Jennifer Light	NWPCC	Ken Ross	Fortis BC
Steven Simmons	NWPCC	Tom Pardee	Avista Corp
Annika Roberts	NWPCC	Scott Johnson	NW Natural
Landon Snyder	Snohomish PUD	Rebecca Smith	Transformist
Dan Kirschner	NWGA	Clay Riding	NW IW
Michael Cocks	BPA	Jeremy Holland	Mortenson
John Robbins	Amerm HI	Gurvinder Singh	PSE
Brian Dombeck	BPA	Michael Brutocao	Avista Corp
Ian McGetrick	Idaho Power	Brian Dekiep	NWPCC
Haixiao Huang	NW Natural	Elizabeth Osborne	NWPCC
Alexandra Karpoff	PSE	Joe Walderman	NWPCC
Byron Harmon	WA UTC	Chad Bracher	Williams
Hannah Wahl	PSE	Michael Freels	ODOE
Chase Morgan	IF Power	Aaron James	NEEA
Nolan Brickwood	VNF	Fred Heutte	NW Energy Coalition
Lori Hermanson	Avista Corp	Erin Childs	Renewable H2
Haley Ellett	Hood River	Matthew Doyle	NW Natural
Craig Patterson	independent	Robert Diffely	BPA
Dan Serres	Columbia Riverkeepers	Chris Kroeker	NW Natural
Jaclynn Simmons	WA UTC	Jillian DiMedio	ODOE
Aimee Robinson	BPA	Leann Bleakney	NWPCC