



# **NEVADA LEGISLATURE JOINT INTERIM STANDING COMMITTEE ON NATURAL RESOURCES**

*(Nevada Revised Statutes [NRS] 218E.320)*

## **MINUTES**

**June 4, 2024**

The fifth meeting of the Joint Interim Standing Committee on Natural Resources for the 2023–2024 Interim was held on Tuesday, June 4, 2024, at 9 a.m. in Room 4401, Grant Sawyer State Office Building, 555 East Washington Avenue, Las Vegas, Nevada. The meeting was videoconferenced to Room 4100, Legislative Building, 401 South Carson Street, Carson City, Nevada.

The agenda, minutes, meeting materials, and audio or video recording of the meeting are available on the Committee's [meeting page](#). The audio or video recording may also be found at <https://www.leg.state.nv.us/Video/>. Copies of the audio or video record can be obtained through the Publications Office of the Legislative Counsel Bureau (LCB) ([publications@lcb.state.nv.us](mailto:publications@lcb.state.nv.us) or 775/684-6835).

### **COMMITTEE MEMBERS PRESENT IN LAS VEGAS:**

Senator Julie Pazina, Chair  
Senator Edgar Flores (Alternate for Senator Scheible)  
Senator Pete Goicoechea  
Assemblywoman Venicia Considine (Alternate for Assemblywoman Anderson)  
Assemblywoman Shannon Bilbray-Axelrod

### **COMMITTEE MEMBERS PRESENT IN CARSON CITY:**

Assemblyman Rich DeLong  
Assemblywoman Selena La Rue Hatch

### **COMMITTEE MEMBER ATTENDING REMOTELY:**

Assemblyman Bert Gurr

### **COMMITTEE MEMBERS ABSENT:**

Senator Melanie Scheible (Excused)  
Assemblywoman Natha C. Anderson, Vice Chair (Excused)

**LEGISLATIVE COUNSEL BUREAU STAFF PRESENT:**

Jann Stinnesbeck, Principal Policy Analyst, Research Division  
Becky Peratt, Senior Policy Analyst, Research Division  
Lisa Creamer, Senior Research Policy Assistant, Research Division  
Erin Sturdivant, Senior Principal Deputy Legislative Counsel, Legal Division  
Jeffrey Chronister, Deputy Legislative Counsel, Legal Division  
Adam Drost, Principal Program Analyst, Fiscal Division

*Items taken out of sequence during the meeting have been placed in agenda order.  
[Indicate a summary of comments.]*

## **AGENDA ITEM I—OPENING REMARKS**

[Chair Pazina called the meeting to order. She welcomed Members to the fifth meeting of the Joint Interim Standing Committee on Natural Resources for the 2023–2024 Interim. Chair Pazina asked the secretary to call the roll and noted Assemblywoman Considine was serving as an alternate for Assemblywoman Anderson and Senator Flores was serving as an alternate for Senator Scheible.]

### ***Chair Pazina:***

Our agenda today includes presentations on lithium mining and wildlife crossings.

[Chair Pazina noted the public can receive notifications of the Committee’s agendas, minutes, and final report by signing up on the Nevada Legislature’s website. She also discussed meeting guidelines for Committee Members, presenters, and those providing public comment.]

## **AGENDA ITEM II—PUBLIC COMMENT**

### ***Chair Pazina:***

We are going to move to public comment. This will be our first of two public comments for today. If there is anyone wishing to provide public comment here in Las Vegas, please come up to the table. I do not see anyone in Las Vegas. If there is anyone in Carson City who would like to make public comment, please head to the tables. I see someone coming to the table. Once we have those two speakers, Broadcast and Production Services (BPS), be ready for the phones.

### ***Kassandra Lisenbee, Outreach and Program Coordinator, Great Basin Resource Watch:***

Good morning to the Committee. Our organization works with communities to protect their land, air, and water from the harms of mining and extraction throughout the Great Basin. You are going to hear a lot today about lithium mining, the uses, the virtues, and the development of a lithium economy. It is important to understand that mining is damaging to the environment and is disruptive to communities. Mining is also a significant driver of climate change, with the United Nations (UN) International Resource Panel showing that annually, the extraction of metals and minerals has risen significantly to account for approximately 20 percent of climate impacts. Because of mining and its damage and legacies of pollution, it is imperative that we are judicious and careful when permitting new mines. This is not what we have witnessed with the Thacker Pass Mine nor with the Rhyolite Ridge process. It is dangerous to relax the standards we have in mine permitting. If more mining is going to be coming to the State, we ask to increase better standards and protections for both our human and nonhuman communities throughout the Great Basin. We cannot allow the end use of a mineral to affect the rigor of our analysis and to streamline our permitting process. Only if we fully understand what damage is possible with a proposed mine, can we then develop plans to address those damages. We must also recognize that mines disproportionately affect certain communities. The development of mines is inherently an environmental justice concern. Directly affected and disproportionately affected communities have the right to know how a mine is expected to

affect them and have access to resources to be able to evaluate the mine plan and what that will mean for their community. Thank you for keeping this in consideration today.

***Chair Pazina:***

Thank you. We will go to our next speaker in Carson City.

***Deni French, Carson City Resident:***

I could not have picked a better time to be a gentleman. I would say ditto to everything Ms. Lisenbee said. It was a much more educated version of what I would say. I think we are shortsighted on our considerations towards lithium. In our attempt to save ourselves, we are actually, I think, going to do the exact opposite. I think we are going to compound the issues quicker than we needed to. I feel the mines have been a benefit to this community in Carson because of the taxes they pay and for the minerals they have brought to our abilities to have and our necessity to have. I really also feel the people impacted, several of the tribes and such, will have, I hope, presentations to relieve their need to be able to relate to the situation. I myself, as a Carson City resident, feel lithium is a shortsighted situation and the impact will be devastating. Thank you very much.

***Chair Pazina:***

I believe we had one more speaker approach the table in Carson City.

***Olivia Tanager, Executive Director, Sierra Club Toiyabe Chapter:***

Thank you, Chair Pazina and Joint Interim Standing Committee on Natural Resources. The Toiyabe Chapter believes we all have the right to a livable planet and that our kids and our kids' kids deserve the best shot we can give them at addressing the climate crisis. We also strongly believe ecosystems across the Great Basin need to be held to the highest standards of protection. Nevadans recognize as much as anyone, if not more, the stakes of the climate crisis. A new Associated Press report I read yesterday showed that 226 people died in Nevada last year due to extreme heat. We need to transition away from fossil fuels for the sake of Nevadans and people across the world, but we should not and cannot transition at the expense of our ecosystems and our communities. We strongly believe consultation with native communities to avoid extraction in sacred areas is of paramount importance, especially as the energy transition ramps up here in Nevada. We must identify low-conflict areas and low-conflict ways of extracting things like lithium. Direct lithium extraction, or DLE, is a substantially better way to obtain lithium, especially for a water-starved state like Nevada. By avoiding large open pits, our evaporation basins would be able to keep much more of their own water, and the footprint of the project would be minimized. It is my hope this Committee will do everything possible to limit the harm to communities across the State from the mining industry, ensure that DLE is seen as the preferred method of obtaining lithium, and it is regulated appropriately. Thank you for all you do as caretakers of our beautiful State.

***Chair Pazina:***

Broadcast and Production Services, we will go to the phones. Do we have anyone on the phones wishing to speak during our first section of public comment?

**BPS:**

Chair, the public lines are open and working; however, there are no callers for public comment at this time.

**Chair Pazina:**

With that, we will close our first section of public comment. I would remind everyone we have public comment again at the end of the meeting.

### **AGENDA ITEM III—APPOINTMENT OF MEMBERS TO THE SUBCOMMITTEE ON PUBLIC LANDS**

**Chair Pazina:**

Let us move to the appointment of Members to the Subcommittee on Public Lands. The Inter-Tribal Council of Nevada (ITCN) has recommended Marissa Weaselboy to serve as the tribal representative to the Subcommittee on Public Lands. Her qualifications are quite impressive, and we appreciate the ITCN's effort to secure a recommendation. At this time, I would like to officially appoint Ms. Weaselboy to serve as the tribal representative to the Subcommittee on Public Lands. We thank you in advance for your service. The ITCN resolution containing this recommendation will be available on the Legislative website. The next meeting of the Subcommittee will be on Friday, July 12, 2024, in Eureka. We welcome our new representative to the Subcommittee. That closes Item III on the agenda.

[Clifford Banuelos, Tribal State Environmental Liaison, ITCN, submitted a resolution of the ITCN ([Agenda Item III](#)) for the record.]

### **AGENDA ITEM IV—PRESENTATION ON CONCERNS RELATED TO LITHIUM DEVELOPMENT NEAR ASH MEADOWS NATIONAL WILDLIFE REFUGE**

**Chair Pazina:**

We will begin our presentations today. Item IV is a presentation on concerns related to lithium development near Ash Meadows National Wildlife Refuge. For our presentation, we will hear from presenters Mason Voehl, the Executive Director of the Amargosa Conservancy; Carolyn Allen, the Chair of the Amargosa Valley Town Board; and Mandi Campbell, the Tribal Historic Preservation Officer representing the Timbisha Shoshone Tribe. We thank you for joining us here in Las Vegas as well as over Zoom. We ask that you introduce yourselves and spell your names for the record. Please begin when you are ready.

**Mason Voehl, Executive Director, Amargosa Conservancy:**

Thank you to the Committee for this opportunity to speak during today's hearing. I am a Las Vegas resident and the Executive Director of the Amargosa Conservancy. We are a 501(c)(3) nonprofit organization working in the Amargosa River Watershed of western Nevada and eastern California. The issue we wish to address this morning concerns proposed and potential mining activities near Ash Meadows National Wildlife Refuge, Death Valley National Park, and Amargosa Valley, and the ongoing effort to secure enhanced safeguards for groundwater-dependent communities in this extraordinary landscape in Southern Nevada. ([Agenda Item IV A-1](#)) ([Agenda Item IV A-2](#))

Ash Meadows is a designated wildlife refuge celebrating its 40<sup>th</sup> anniversary of protection this year. It is the largest remaining oasis in the Mojave Desert. It is home to at least

26 species that live nowhere else in the world. Ash Meadows is an internationally renowned and recognized biodiversity hotspot by the Ramsar Convention. Within the boundaries of Ash Meadows is a disjunct portion of Death Valley National Park, which contains the Devil's Hole and Devil's Hole pupfish, the most endangered fish species on earth.

Ash Meadows is located in the heart of the Amargosa River Watershed. The Amargosa River is a groundwater river running for 185 miles through one of the hottest and driest deserts on earth. In addition to supporting incredible biodiversity, the Amargosa River supports communities and economies for some 40,000 people, some of whom you will hear from today. Concerns for Ash Meadows and the surrounding communities has heightened significantly in the last year due to increased interest in mineral exploration and extraction in the Amargosa Desert with specific interests surrounding potential lithium mining in the region.

In the summer of 2023, a Canadian mining company called Rover Critical Minerals proposed an exploratory drilling project on lands managed by the Bureau of Land Management (BLM) in close proximity to Ash Meadows, posing potential impacts to groundwater which sustains springs and wetlands within the refuge and had the potential of impacting local water rights holders in Amargosa Valley. This map depicts that project with the red icons illustrating their proposed borehole locations, some of which were within a few thousand feet of the largest and most significant springs in the refuge. While the exploration itself poses significant threats to this fragile ecosystem, of greatest concern is that this project could pave a path toward the creation of what could be an open pit mine next to one of the crown jewels of Southern Nevada.

This is a depiction put out by the mining company showing a mine of several square miles extending into the refuge itself. A diverse coalition of tribes, nonprofit partners, and local governments have banded together to push back against the permitting of this project. Ultimately, last summer the BLM rescinded their approval of that initial project on July 17, 2023. Despite strong opposition, and in the face of hydrological analyses that have demonstrated the real potential for groundwater resources to be drastically and permanently impacted by mining exploration activities, Rover Minerals has continued to seek approval for their drilling near Ash Meadows and in recent months, has staked as many as 400 new mining claims spanning 8,000 acres near the town of Amargosa Valley. Some of these new mining claims are staked literally across the street from people's homes and businesses in the community. This new claim area also sits atop an established groundwater flow path that sustains both the Amargosa Valley community in Nevada, Timbisha Shoshone tribes' sovereign community in Furnace Creek, California, and springs and wetlands within Death Valley National Park.

In light of the grave concerns over the future of their water security as well as the potential impacts to wildlife and natural resources in iconic landscapes of Ash Meadows, Death Valley, and the Amargosa River, our coalition is seeking urgent action from the United States Department of the Interior (DOI) and Congress to protect this portion of Nevada from the harms of new mining through a mineral withdrawal process. Mineral withdrawal is a process through which a specific defined area of federally owned public lands are temporarily or permanently withdrawn from new mineral entry. That means no new mining claims can be filed in a withdrawn area. This is typically done to protect certain values, such as environmental, cultural, or recreational interests, which clearly, we have in abundance in this location. A mineral withdrawal process would withdraw a defined area of public lands from new mineral entry with valid existing rights and operations retained. This action has garnered significant support in recent months from the Timbisha Shoshone Tribe, the Nye County Board of County Commissioners, the Nye County Water District,

Amargosa Valley Town Board, Beatty Town Advisory Board, 25 nonprofit partners, and 1,100 individuals living in the region. This is a map depicting our study area. This is a draft map. I want to emphasize a mineral withdrawal action only pertains to federal lands and does not impact private lands.

We look forward in the coming months to working with members of both our state and federal delegations and with relevant state and federal agencies to undertake this mineral withdrawal process urgently. This action is necessary to ensure the diverse communities of life and water rights holders in Amargosa Valley and downstream communities are safeguarded and afforded a real chance to flourish into the deep future. With that, I would like to turn it over to my co-presenter, Mandi Campbell, who is the Tribal Historic Preservation Officer with the Timbisha Shoshone Tribe.

***Mandi Campbell, Tribal Historic Preservation Officer and Member, Timbisha Shoshone Tribe:***

I have lived in Death Valley almost all my life. Ash Meadows is a special place to myself, my family, and my ancestors. My ancestors always traveled there, and many tribes traveled there for ceremonies. The water there is healing. They did healing ceremonies. The food, the vegetation there—they gathered food. It was a place where all tribes gathered together. It always was a special place to all of us. The vegetation and the habitat alone there is—the water they live in is special. It is a healing water. The habitat and the vegetation survive there, and a lot of them will not survive someplace else. That is what makes Ash Meadows so special. My people have been going to Ash Meadows—our history is in layers. It is not only on top of the surface. They have been there for years, and the story keeps coming and coming. My auntie—she is 99 years old—has been going there all her life. As a kid, my parents watched my elders, my auntie, and all of them go there to take healing baths. We were never taught to disrespect that area. We were never taught to destroy the earth the way this lithium mine wants to come into this unusual place. It is going to end up killing the habitat. It is going to end up killing the vegetation.

What is going to happen in years to come when—they say now they are going to adapt; are they going to really adapt five years down the road? Is everything going to be able to still survive there? We need Ash Meadows to survive. Everything is alive there. We all need each other, especially for that healing water to work the way it does. It is beautiful there. It is our home. Our people have always believed you do not destroy the earth and the homes, and it is so close to where we are. It is on top of the aquifers that come here to Death Valley. What is going to happen if they make a mistake? Just one mistake is all it takes, and then there goes more vegetation we lose. Is there a possibility that we lose the water here in Death Valley as well? Look at the pupfish. One lady told me one time that the pupfish are going to save Ash Meadows. You cannot find certain pupfish anyplace else. Where else in the world, I am sure there are places, but Death Valley is known to be so dry, and then we have a storm, and the Amargosa pops out of nowhere, and you have a river flowing through. Like I said, that river is not just a river. The water from underneath, from the aquifers, is finally full. It is a healing river.

Death Valley is special. To me, going there as a kid all my life, I would hate to see something so beautiful destroyed when there are other places that it could go. Other places where there is not so much habitat, there is not so much vegetation, and there is not a place where they have to destroy the aquifer that travels so far. It goes through Shoshone, down to Tecopa, through China Ranch, and back around down here to Badwater. My people know where all the springs, aquifers, and everything are. They have gone to all these spots. Once this happens, it is going to start draining it. Then what is going to be out there? There

are areas you can go where we used to sit as kids. My aunties used to take us. There are waterfalls out there. Are those waterfalls still going to be there? Are those special ceremonial places that we went still going to be the same? They want to bring in these lithium mines, or they want to bring in these different mines and destroy our home. I understand they have to have lithium, but does it have to be here? There are tons of other places they can take it.

***Chair Pazina:***

Thank you, Ms. Campbell. Did you have another presenter?

***Mr. Voehl:***

Yes, I would like to present Carolyn Allen. Carolyn is the Chair of the Amargosa Valley Town Board.

***Carolyn Allen, Chair, Amargosa Valley Town Board:***

Thank you for having us this morning. Amargosa Valley is home to Ash Meadows, Big Dune, the Devil's Hole pupfish, and 11 other threatened or endangered species. I forgot one important endangered species, the people of the town of Amargosa. What brought us here initially is Ash Meadows with its unique biodiversity and stunning landscapes. It is not only a natural wonder but also an essential sanctuary for countless species of plants and animals, some of which are found nowhere else on earth. It is a place of immense ecological significance and a source of pride for our community and our nation.

Recent proposals to initiate lithium mining in the vicinity of Ash Meadows and the potential environmental consequences of mining in this area cannot be overstated. Amargosa is not against mining, let me state that clearly. Lithium extraction processes, particularly those involving open pit mining and the use of chemicals, can lead to irreversible damage to the land, water, and wildlife in the region. The disruption of groundwater systems, contamination of aquifers, and destruction of habitats would not only endanger the unique species that call Ash Meadows home but also jeopardize the livelihoods and the lives of the people of Amargosa. This includes our local community members, the Timbisha Shoshone Tribe, who rely on the land for their sustenance and economic wellbeing.

Moreover, the tourism industry, which plays a significant role in our local economy, would suffer immensely if the pristine beauty of Ash Meadows is compromised by mining. Many businesses in our area and Nye County depend on tourism. Visitors come from all over the world to experience the natural splendor of our Valley as well as Death Valley National Park. Any harm to Ash Meadows would not only diminish the appeal as a tourist destination but also undermine the conservation efforts and investments we have made to preserve this invaluable resource.

Of equal importance is the town of Amargosa and its people. Rural and remote, Amargosa is 95 percent BLM land. Land which was mandated for renewable energy. With its irradiated sun and flat wide-open landscape, Amargosa became ground zero for three new transmission lines and 15 commercial solar projects to help build a commitment to move forward with renewable energy. Imagine 50,000 acres of solar panels in a town only 16 miles long north to south. When these maps and plans were created, did anyone think there were people living here that loved and valued their way of life? After all, we are situated in a desert flanked by the Funeral Mountains, bordered by Death Valley National



Park to the west, the Nevada National Security Site to the north, Yucca Mountain to the northwest, Ash Meadows to the east, and Tecopa to the south.

It is an area needing to conserve water in order to survive. Amargosa has wells going dry that were initially 90 feet deep now needing to be drilled as deep as 300 to 500 feet. Low incomes, high unemployment, water issues, limited services, and volunteer emergency services [audio cut out]. Those services are servicing 42 miles of Highway 95 trying to keep travelers and us safe. We are fighting to enhance much needed services to support and maintain our lifestyle and to simply survive. The population of Amargosa, 1,430, is a low-income community which houses Ponderosa Dairies, Longstreet Hotel Casino and RV Resort, two small stores, and a restaurant. The Dairy, which employs 80 percent of the working population and 45 percent of the students at the local school, is currently planning to sell to a solar company and close. The school will then close. The solar projects require more water and create no permanent jobs. We need to create a solution as a town to make more jobs available. Lithium mining here is not the answer. Lithium mining in Amargosa signals the creation of another ghost town for Nevada, a death sentence for Amargosa, Ash Meadows, and Death Valley National Park, one of our treasures.

As stewards of our State's natural heritage, I urge you to take decisive action to protect Ash Meadows, the people of Amargosa, the tribes, and the surrounding communities from threats posed by mining—lithium mining to be exact. I ask you to support legislation and policies that safeguard this area for future generations to appreciate and enjoy. The town of Amargosa and our partners here today thank you for your attention in this matter.

***Chair Pazina:***

At this time, we will open for questions. We will start with Assemblywoman La Rue Hatch and then move to Assemblyman DeLong.

***Assemblywoman La Rue Hatch:***

Thank you all for presenting on this critical issue this morning. My question is about the mineral withdrawal application. Where is that in the process? What steps are being taken, and what still needs to be taken?

***Mr. Voehl:***

A mineral withdrawal can be executed in two different ways. There is a legislative path, so Congress could introduce legislation requesting this action. There is also an administrative path. That power resides with the Secretary of the Interior. Typically, that is conducted through an application process. The managing federal agency or agencies would conjointly issue a petition to the Secretary of the Interior, calling on her to consider this area for this action. Should she decide to do that, there would be a National Environmental Policy Act (NEPA) process conducted. That would be an environmental impact statement (EIS). This process would go in front of the public for input, scoping, and further consideration. Currently, we are in the process of establishing both the support for this action at the local level in the communities and developing the science needed to robustly support this action. Our partners in The Nature Conservancy (TNC) have contracted an important hydrological analysis that demonstrates a profound need for this action. That is included in your backup materials. Currently, we are working with our local communities to firmly establish the analysis area we want to see analyzed by the agencies. We are also working with our Nevada Congressional Delegation seeking their support for this action as well.

***Assemblywoman La Rue Hatch:***

To clarify, it sounds like the application is in process, and you are in the process of gathering support, which does not sound like it is largely a legislative issue. Obviously, it is not going to work through our chambers, so how can we help? Would it help for the Committee to have a letter of support? Does it help just having this discussion? What are you looking for in terms of support from us?

***Mr. Voehl:***

I believe a letter of support in the future from the Committee would be meaningful in demonstrating the State's commitment to—especially respecting and upholding the community's concerns in this case. I think it is remarkable to look at the coalition behind this effort. It is not just an environmental issue. As you heard today from our local community members, this is significant to the State and the county, of course. I think a letter from the Committee would be meaningful in illustrating the support at the State level for this action.

***Chair Pazina:***

Assemblyman DeLong.

***Assemblyman DeLong:***

First, thank you for the presentations. It is good to understand what everyone's concerns are for the area. I would like to ask a few questions to understand what is going on in the Ash Meadows area. It sounds like the Ash Meadows area and the wildlife refuge is primarily of concern because you have groundwater near the surface which is supporting a number of species. We have groundwater that is supporting the species. Is that correct? [Presenter indicated yes.] Thank you; that is helpful. Has Rover conducted any exploration drilling yet?

***Mr. Voehl:***

As of today, they have not done any exploratory drilling. They have only done surface sampling activities.

***Assemblyman DeLong:***

Do they have any permits to do exploration?

***Mr. Voehl:***

Not currently. Last summer in 2023—

***Assemblyman DeLong:***

Have any applications been filed for a lithium mine in that area?

***Mr. Voehl:***

As of today, only exploratory drilling permits have been filed. None have been accepted or gone through the NEPA process.

***Assemblyman DeLong:***

Does the existing clay mine next to the Ash Meadows area affect the species area or the groundwater in that area?

***Mr. Voehl:***

No. In honesty, that is a different type of mining that is being conducted by the Lhoist operation. It is surface-level clay stone scraping, so it is a different caliber of mine than has been proposed by other companies. There is still a question as to whether there are significant impacts, but because they are staying largely above the groundwater table, it does not seem it is having a profound effect on the refuge.

***Assemblyman DeLong:***

You are implying we know what type of mining is going to occur by Rover. If they do file applications, do you know they are actually mining below the groundwater?

***Mr. Voehl:***

Based on what they have shared with their investors through their communications, including that open pit depiction on their website, they suggest there is a path following exploratory drilling to that depth of 350 feet for an open pit mine creation of a similar depth. We are inferring from their communications to their investors at this time.

***Chair Pazina:***

Do we have any questions here in Las Vegas? Regarding DLE, is that something Amargosa Conservancy or the town or the tribe have had any discussions on?

***Mr. Voehl:***

Yes, I think this is something across the whole Mojave we are paying attention to. It is worth noting, DLE is an incredibly new and largely untested form of extraction. We still have serious concerns over what DLE impacts could register on a groundwater table that is so sensitive. Even though this technology promises to do a reinjection model, the hydrology in the Amargosa Basin is extremely sophisticated and is very sensitive to change. Even diverting water from one channel to another can have significant impacts downstream. We would be extremely concerned about a DLE project in any close vicinity to the refuge or within Basin 230 at this time.

***Assemblyman DeLong:***

Chair, I have a follow-up, if I may. Since DLE came up, I would like to confirm, based on what was previously said about the fact that it would be an open pit mine, that implies they are mining rock to extract the lithium, not pump groundwater to extract the lithium. Direct lithium extraction would not be applicable in this situation. Is that consistent with what you were previously saying?

***Mr. Voehl:***

Yes. The company has advertised a clay stone operation, which would utilize a heap leach method of extraction on that clay stone deposit. Because of the depths they have advertised of their open pit, that operation would require significant dewatering basically overcoming

the head needed to sustain springs in the refuge in order to access that ore. Direct lithium extraction is not on the table; however, the open pit mine would require significant dewatering as part of its operation.

***Chair Pazina:***

Assemblyman DeLong, any follow-up?

***Assemblyman DeLong:***

Not at this point. As far as it relates to permitting a mine, I think we have other discussions later in this meeting that will illuminate the fact that there is extensive environmental evaluation that occurs before a mining operation would happen. I think that would alleviate a number of people's concerns. I think we will see where that goes later in this meeting.

***Chair Pazina:***

I am not seeing any questions from Assemblyman Gurr at this time either. Thank you and your team. We will now close Item IV on the agenda.

## **AGENDA ITEM V—PRESENTATIONS ON STUDIES AND CONCERNS RELATED TO LITHIUM AND CRITICAL MINERALS MINING IN NEVADA**

***Chair Pazina:***

That brings us to presentations on studies and concerns related to lithium and critical minerals mining in Nevada. The Nature Conservancy and the Center for Biological Diversity approached separately with different presentations, but we felt it was a good fit under one agenda item to keep our meeting moving. First up is Mauricia Baca, Nevada State Director of TNC, who will be giving opening remarks from Las Vegas. Then we will hear from Patrick Donnelly, Great Basin Director with the Center for Biological Diversity, followed by a presentation from Jaina Moan, External Affairs Director with TNC, and Mickey Hazelwood, Nevada Conservation Director also with TNC.

***Mauricia Baca, State Director, TNC in Nevada:***

We commend you, Chair Pazina and the Committee, for hearing presentations about the lithium development life cycle at this meeting. We especially appreciate that you included an agenda item dedicated to the environmental concerns and needs in the context of lithium extraction and development in Nevada. Thank you for hearing a presentation about the proposed lithium exploration at the border of Ash Meadows National Wildlife Refuge as well. The Nature Conservancy is deeply invested in the conservation of that place. Forty years ago, TNC deeded that property to the U.S. Fish and Wildlife Service. We have recently provided scientific analysis to understand the potential impacts of lithium development in that area. The analysis found that they are significant. Indeed, even from exploratory drilling, there could have been catastrophic consequences to the aquifer. Ash Meadows is quite possibly the highest conflict area in the State where one could explore for lithium.

I want to be clear; this topic is not intended to be critical of any one particular mine or the mining industry. The Nature Conservancy looks toward solutions where humans and nature thrive. We recognize that to evolve our economy and address climate change, there is a need for mining to provide lithium and other critical minerals. Alongside the climate crisis, there is also a biodiversity crisis. The Nature Conservancy is a science-based organization that strives to find the balance for humans and nature. It is our desire and goal that this

extraction and development proceed with the least amount of conflict with environmental and cultural resources and communities as possible. To do that, we feel we must understand what those conflicts are and what they might be so we can avoid them upfront. This is not only better for nature and communities; it is also the most cost-effective solution for projects. It is a critical time for Nevada's economic and energy future. We are at the cusp of an upward momentum for development of lithium and other critical minerals. Unlike energy transitions of the past, we can enter this transition informed by the wisdom we have all gained from past mistakes. It is important we get this right or as we like to think of it, that we are "smart-from-the-start" as we move into this new energy future.

You will hear two presentations today by two different organizations on this agenda item. One is from the Center for Biological Diversity, and the second is from TNC. First, Patrick Donnelly from the Center for Biological Diversity will share a presentation about permitting for DLE. His presentation will be followed by our Nevada External Affairs Director Jaina Moan, who will present about research TNC scientists and our partners have done to understand the potential impacts to biodiversity from proposed lithium extraction. Thank you again, Chair Pazina and Committee, for your attention today. With that, I will turn this over to Patrick Donnelly for the first presentation.

#### **A. REPRESENTATIVES OF THE CENTER FOR BIOLOGICAL DIVERSITY**

##### ***Patrick Donnelly, Great Basin Director, Center for Biological Diversity:***

Thank you, Chair Pazina and Members of the Committee for scheduling this meeting today for this important topic. This is a presentation on DLE. To preface, the climate crisis is an existential crisis for humanity and for biodiversity. The Center for Biological Diversity supports electric vehicles (EVs) as a tool to decarbonize our economy. As a result, that means we support lithium extraction, whether it is mining or other techniques. We implicitly support more lithium. We have made a mark for ourselves, obviously fighting some lithium mines, but we are actively in search of lithium that can help us achieve those goals while minimizing impacts on the environment. We believe DLE is a step in the right direction. However, under the current set of permitting regimes, we feel the State is not quite ready for the rush of DLE projects, and that is what I am going to present on today. ([Agenda Item V A](#))

Traditionally, lithium is produced in two ways, either hard rock mining or brine evaporation. Direct lithium extraction is an emerging class of technologies which aims to directly remove lithium from brine without evaporating the water off. Nevada's only existing lithium production site is the Silver Peak site in Clayton Valley where they evaporate brine and then harvest the lithium from the remaining minerals. Direct lithium extraction would accomplish a similar thing of extracting the lithium from those brines, but without the evaporation. It uses physical, chemical or electrical processes, or some combination thereof, to extract the lithium. Those technologies are proprietary, and there are a number of them floating around out there. I am not sure the market has settled on technologies that will be industry standard. This is an emerging sector of the extraction industry. There are many pilots around the world. [There are] several in South America, and there is one in Nevada I am aware of. Clayton Valley recently began producing lithium on a pilot scale, as I understand. There are zero commercial-scale DLE projects globally. This is very much an emerging technology, and I think the State of Nevada still has a chance to wrap its arms around it.

Direct lithium extraction targets mineral laden brines almost always under dry lake beds, or playas, in the desert Southwest. It is not just Nevada. There are also DLE proposals in Arizona, New Mexico, and Utah. Generally, the technology is straightforward. You pump the

brine, extract the lithium through the complex technological processes, and then you reinject the spent brine back into the aquifer. Some DLE projects do consume fresh groundwater, which is important to note that it is not a completely water-neutral process. However, because these technologies are emerging, we are not sure what that water consumption looks like. It varies from proposal to proposal. The major question which needs answering in those cases is what the connection between the brine and freshwater aquifer is, given that freshwater aquifers are what creates habitat biodiversity as well as sustaining our communities.

Direct lithium extraction holds promise. It may have a lower environmental footprint than other forms of lithium production. There is no significant earth moving or open pits. A DLE project would be a well field and a factory size building where the extraction would happen. It is a different thing than an open pit mine. It would consume far less water than evaporation projects. As a result of all this, the land footprint is dramatically smaller. If regulated and cited in a thoughtful way, DLE may be a rapid way to increase lithium production in Nevada while limiting environmental impacts compared to other production methods.

There are 38 proposed brine projects in Nevada I am tracking. All are assumed to be DLE. That is not actually known in all cases because they are targeting brines. However, folks in the industry who I have spoken to say that more brine evaporation projects are unlikely because they are not as economical as potentially a DLE project would be. If DLE gets unlocked, it could change the whole economy of extracting lithium because of a potentially lower cost of extraction. All projects proposed in Nevada thus far are on playas or dry lake beds, particularly in Esmerelda, Nye, and Mineral counties, but also in Churchill, Washoe, Clark, and other counties. Again, there is that one pilot project that I am aware of.

The problem is there is no regulatory framework in place for DLE. A DLE project is a well field with a factory sized building where the extraction happens. It is not a mine. It is inaccurate to call a DLE project a mine because a mine is a fundamentally different thing. Mining regulatory frameworks do not apply to the unique challenges and uncertainties we need to account for when permitting a DLE project. That means there is regulatory uncertainty right now. That could cause project delays. That could cause high risk to investment and thus slowed investment when compared to other types of lithium extraction. This has resulted in numerous contested water rights cases across the State. In particular, in Clayton Valley there are multiple lawsuits going on and elsewhere in the State as well, at least partially because of the uncertainty inherent in trying to fit a square peg into a round hole with lithium extraction going into our current regulatory regime—it just does not work. While this technology could become a dominant player in the lithium market, Nevada's regulatory structure is not ready to accommodate it.

The most significant regulatory gap around DLE is nonconsumptive use. Fundamentally, a DLE project involves pumping and reinjecting water, which theoretically is nonconsumptive or is largely nonconsumptive. However, it could alter the availability of surface water or groundwater resources. The only real corollary we have is geothermal energy, which is similar if you think about it. You pump hot water, you extract heat from it, and you reinject that water—at least in a binary cycle geothermal plant. It is known from experience that some geothermal projects have affected surface water resources. This is because you are pumping and reinjecting vast amounts of water. Tens of thousands of acre feet are being pumped and reinjected through aquifers. Aquifers are complex systems with pressure and temperature gradients, faulting, and other factors that cause springs, wetlands, and surface water expression of groundwater. It is a complex system. Pumping and reinjecting that vast amount of water can alter the aquifer dynamics, the pressure gradients, and change the

availability of surface and groundwater potentially. The big question is, how will nonconsumptive groundwater pumping and reinjection at high volumes affect the availability of surface water resources and groundwater levels? I will say this is extremely context dependent. Every basin in the State has different geology and different hydrology. There is no blanket statement about how DLE might affect aquifers. It is contingent on the science.

Nevada has no established statutory framework for regulating nonconsumptive use. We have water rights applications which are for consuming groundwater. Certainly, the pumping and reinjection is regulated as far as well drilling is concerned. There are permits for well drilling, but the actual act of pumping and reinjection is not accommodated for in current statute. It is fundamentally different than an appropriation of groundwater as we think of it. It is also fundamentally different from our current framework for appropriating water for mining. Mining has certain types of appropriation within statute, but again, they do not apply to this idea of pumping and reinjecting water through an aquifer in the same way. We need a different regulatory regime for nonconsumptive pumping and reinjection.

There are also a few other regulatory gaps we need to be considering. Reclamation standards are going to be different from a DLE project as opposed to an open pit mine. The solid waste stream that is generated—when you extract lithium through DLE, you are not just extracting lithium. You are going to get a number of minerals, and that is going to generate a solid waste stream. That may need its own type of regulation. Is brine evaporation still a beneficial use of water? If there are other ways to produce lithium without evaporating that water off, I think we need to consider whether that is still the best use of that water resource when there is other technology available that obviates the need to permanently withdraw that water from the aquifers.

There are a number of approaches this Committee and the Legislature as a whole could take to start addressing this issue. One would be to establish a committee and fund a study to investigate regulatory changes to accommodate DLE permitting and provide those recommendations before the 2027 Legislative Session. Another approach would be to dive in and get regulatory changes going in a bill in the 2025 Session. I think it is important to note that none of this is going to work if it is the Center for Biological Diversity's permitting regime. That is not what we are proposing. This needs to be done in concert with industry. It needs to be done in concert with the tribes in Nevada, local communities, the scientists who are doing the science on this, and all the stakeholders. Certainly, it is possible to dive into this in the 2025 Session, but it would take a lot of leg work between now and session to find something that is amenable to everybody. Ultimately, we need something that will protect the environment and communities but also accommodate industry producing the lithium we know we need. It is going to take a lot of parties coming together, even if they have historically been on opposite sides of issues. Those are steps this Committee could take. I am happy to stand for questions.

***Chair Pazina:***

Does anyone in Southern Nevada have any questions for Mr. Donnelly? We have one up north, Assemblyman DeLong.

***Assemblyman DeLong:***

Thanks for that discussion on DLE. It was pretty accurate about how it works, which is good. Are you saying that anyone could pump groundwater without consuming it without getting a permit?

**Mr. Donnelly:**

There are a number of permits which would be involved, like well drilling permits, which have to do with the technical aspects of the well, the casing diameter, the types of—

**Assemblyman DeLong:**

Groundwater rights?

**Mr. Donnelly:**

There are no groundwater rights needed for pumping and reinjecting water.

**Assemblyman DeLong:**

Why is every mining operation in the State that is penetrating the groundwater table with their pit getting a water right from the State Engineer to pump that water and requiring them to reinfiltrate that into the basin?

**Mr. Donnelly:**

As I understand it, mine dewatering is regulated under mining statutes. I see you shaking your head. I would be interested in being edified by you either at this moment or in the future.

**Assemblyman DeLong:**

The State Engineer absolutely regulates the pumping and management of nonconsumptive use of water.

**Mr. Donnelly:**

May I reply?

**Assemblyman DeLong:**

Fine with me.

**Mr. Donnelly:**

My experience with this, again, there is a good corollary with geothermal energy. At least with geothermal energy projects, there is no required water rights application for pumping and reinjecting water.

**Chair Pazina:**

We have a question from Assemblywoman Bilbray-Axelrod.

**Assemblywoman Bilbray-Axelrod:**

Obviously, DLE is an emerging technology, but is it happening in the U.S. at all or is it all—you talked about a pilot program. Since we are tasked with either coming up with a study or going in with regulations, is there a possibility that there are best practices out there? Are we all trying to figure this out? Obviously, it sounds like we need to figure this out both from



an environmental standpoint and also economic development of the State. If it were up to you, what are those clarifications, and where would we look?

**Mr. Donnelly:**

Nevada is certainly ground zero for the emergence of the DLE economy in the U.S. As I said, there are 38 projects proposed here. There is a half dozen proposed between Arizona and New Mexico. None are operational right now. Many are in exploration, drilling test wells, and sampling brines. There is one pilot project in Clayton Valley from Schlumberger (SLB). I believe that project is in operation now producing at a limited pilot scale. There are pilots in South America in the lithium triangle there—I believe in Bolivia. There are no known commercial-scale DLE projects globally yet. This would definitely be Nevada getting ahead of the curve. I am not sure there is an existing regulatory regime to plug into, so to speak. That is why this is tricky. I think this type of regulation to provide certainty to de-risk investment would be groundbreaking.

**Chair Pazina:**

I believe we had another question up north from Assemblywoman La Rue Hatch.

**Assemblywoman La Rue Hatch:**

Thank you for presenting on what I think is a promising new technology. I am eager to learn more. I want to get some clarification on the State Engineer and the water rights and the nonconsumptive use. Obviously, DLE is very new. It is not at commercial scale, so we do not necessarily have those examples, but as you said, we do have geothermal. I want to clarify—there are permits involved, obviously, with any project, but the process is not necessarily the same as an open pit mine with the water rights, is that correct?

**Mr. Donnelly:**

Yes. As we understand it, it would be a separate regulatory process because it is a different set of activities that are undergoing than an open pit mine.

**Assemblywoman La Rue Hatch:**

I have had conversations with the State Engineer where people in communities near geothermal plants have been concerned because there might be effects on the groundwater. He stated to me that there is not much he can do because he does not have oversight of nonconsumptive use. Is that in line with what you have seen with those kinds of projects or with conversations with him?

**Mr. Donnelly:**

That is what I understand. I certainly want to have a discussion with Assemblyman DeLong to understand more about the interaction between that and existing mining regulation. Like I said, this is a bit of a gray area right now. I think these types of discussions to understand the current regime and what improvements could be made is important right now.

**Chair Pazina:**

One last question from Senator Goicoechea.

***Senator Goicoechea:***

I think we are confusing this. Clearly, boreholes are not regulated to the level in statute that a well is. If you are going to sink a well, the State Engineer does have the authority—and if you are going to pump water from that well. A borehole is a little different scenario. Clearly, that is established differently. Under the law, I think we have some protection when you start talking about actually drilling a well, pumping water, and reinjecting it. Mining definitely has to do that. Although, as Mr. Donnelly said, the jury is still out. This is a new process. We do not even know if it is going to work.

***Chair Pazina:***

Thank you for the great questions and interesting presentation, Mr. Donnelly. With that, we are going to move to a presentation by Ms. Moan.

***B. REPRESENTATIVES OF THE NATURE CONSERVANCY***

***Jaina Moan, External Affairs Director, TNC in Nevada:***

Thank you for this opportunity to present to the Joint Interim Standing Committee on Natural Resources about our work on lithium and critical minerals. ([Agenda Item V B-1](#)) ([Agenda Item V B-2](#))

The Nature Conservancy is an international, nongovernmental organization whose mission is to conserve the lands and waters on which all life depends. We are a science-based organization. We use a nonconfrontational, collaborative approach to seek solutions to issues. The Conservancy has been working in Nevada since the early 1980s. We have 30 staff members working for our Nevada chapter. We own and manage nature preserves and conservation easements across the State. We also study issues relevant to achieving our mission. Lithium extraction is a topic we have been investigating over the past several years. Today, I am here to share with you what we have learned about the potential impacts of lithium exploration and extraction on biodiversity.

You may have noticed that critical minerals, especially lithium, have garnered a lot of media attention lately, but why should conservationists care? Society is at the beginning of a massive transition in our energy and transportation sectors. We are switching from fossil fuels technologies to using solar, wind, geothermal energy, and EVs. Alternative energy technologies require critical minerals like copper, lithium, nickel, cobalt, and other minerals, many of which are found in Nevada. For example, the alternative energy transition will require lithium-ion batteries that are used in cars and energy storage on the electric grid. While there is a global marketplace for lithium, there is only one site where it is currently extracted domestically in the U.S. That is at Silver Peak, Nevada. We know from observations of lithium extraction in other locations there can be impacts from exploration and extraction. The focus of our work is to understand what those potential impacts are to biodiversity.

What is biodiversity, and why is it important? Biodiversity is the variety of organisms, plants, and animals found in a specific location. Humans and nature depend on biodiversity and those healthy ecosystems for life. Biodiversity is important for many reasons, including food security, job creation, natural disaster resistance, medicines, and human health. Nevadans depend on our high biodiversity for our water, wildlife, agriculture, and overall way of life. Despite being an arid State, Nevada has incredibly high biodiversity ranking as the 11<sup>th</sup> most biodiverse State in the United States.

Most of what we will present today is based on three products from TNC on lithium, two reports and one published paper. Together with the larger group of TNC scientists, we have worked to complete an analysis of the impacts of potential lithium extraction in the U.S. All these publications are available on TNC of California Science website, [scienceforconservation.org](https://scienceforconservation.org). We will also talk about a current project we are working on related to critical minerals extraction.

First, it is helpful to outline the factors that control impacts to biodiversity. We know these can include extraction method, technology used, scale of production, and specific ecological and hydrological conditions at a site where extraction can occur. Here is a conceptual framework for thinking about the environmental impacts of lithium extraction. On the left, we have lithium in hard rocks and clays represented in red. Lithium in brines is represented in blue. We can follow the black arrows to trace the environmental impact pathways from the extraction type through the impacts to the environment shown in the black filled oblongs in the center of the figure. Additionally, you can further trace how changes in environmental conditions can impact different groups of species shown in the green circles on the right. From the number of black arrows on this diagram, you can see the complexity of this system and the multitude of possible ways living organisms can be impacted by lithium extraction.

As part of our research, we contracted with the Desert Research Institute to prepare a framework and checklist for considering potential hydrologic impacts of lithium extraction in Nevada. The framework and checklist can be helpful tools for evaluating if there is enough information to understand the risks and potential impacts to land and water resources for mining activities, including exploration, extraction, and closure. We highly encourage people to check out the checklist at the website on this slide.

I am going to describe how we analyze the potential impact to biodiversity from proposed lithium projects. Because one of the determinants of environmental impact is site specificity, TNC conducted an overlay analysis. To conduct this analysis, we first created a spatial data layer of proposed lithium extraction sites. We did this using U.S. Geological Survey (USGS) information about the location of lithium resources, known as lithium focus areas. Those are shown in pink on this map. We conducted Internet searches for lithium using the names of states where these pink lithium focus areas occur, spoke with experts to generate a list of where there is industry interest in extracting lithium, and researched claims data. With this approach, we generated a list of 72 proposed lithium extraction sites in the U.S. These are places where there are existing mining claims or a stated interest by a mining company in developing lithium resources.

If we zoom in from the previous map, we are looking at California and Nevada. You can see the location of 55 proposed lithium extraction sites shown by the red dots. Forty of these sites are located in Nevada. For each site, we looked at the claim boundary shown by a solid black line and a buffer around the claim area. A two-mile buffer is commonly used in conservation planning practice. This is meant to capture potential impacts that could occur beyond the claim boundary due to activities within the claim boundary. These include things like fugitive dust or groundwater pumping that causes a drop in the depth of groundwater beyond the claim boundary.

We examined a suite of data sets to see where the proposed project sites intersected with four categories of data: species and natural communities; conservation value; habitat; and land management designations. Listed here is an example of the data sets used in each category. The full table of data sets we examined is ten pages long in our 2024 report. I will

be showing maps that depict how the spatial data layers intersect with an example proposed lithium extraction site located at Sarcobatus Flat, Nevada.

First, the yellow dots on the map represent occurrence data for species that have been collected at the Sarcobatus Flat proposed lithium extraction site. These are records that have been collected in the field and entered into a publicly accessible database. Next is an example of data from TNC representing conservation value. The orange polygons represent places we have mapped as recognized biodiversity locations. On this map, we can see the presence of mapped phreatophytic vegetation, groundwater-dependent plant species. Finally, this map shows where there are different land ownerships at the site. The cross hatched area on the map is a wilderness study area. We used this method of overlay analysis for the 55 sites in Nevada and California to understand what the potential impacts could be.

I am presenting the results only for those 40 sites in Nevada. These are the results from compiling those overlay analysis at each of those 40 sites. As of the publication of our 2024 report, I want to note that was done in February. At that time, there were almost 22,000 lithium mine claims in Nevada. Those are data from the Nevada Division of Minerals. Overall, we identified over 300,000 acres of proposed projects. We found 14 State recognized special status species on those proposed projects. Eighteen of the proposed projects were in groundwater basins that are over-appropriated, and seven of those projects are in groundwater basins that are both over-appropriated and over-pumped. There were 388 named springs and almost 100,000 acres of wetlands in the proposed project areas in Nevada.

From those results, we want to highlight the following conclusions. The first thing we noticed is lithium is quite abundant. There is a lot of it out there, which helps us with our decisions on how we can develop it. The potential environmental impacts of lithium extraction may vary from site to site. More field-based studies at proposed extraction sites are needed to understand biology and hydrology well enough to quantify the impacts. All methods of extraction could impact wetlands, freshwater, and groundwater-dependent species and ecosystems. Direct lithium extraction techniques—while they may be promising, the impacts of those are not fully known. Finally, groundwater impacts are site-specific. They are complex, and where groundwater is ancient, they are irreparable.

From these conclusions, we have developed the following recommendations for ensuring sustainable lithium extraction. First, cumulative analyses focused on wetlands are necessary. The life cycle analyses are also necessary for understanding impacts beyond the extraction phase. With enough information, employing a smart-from-the-start approach is possible where low-conflict and low-impact projects are prioritized and incentivized. Finally, our research is focused on conflicts with biodiversity, but we are keenly aware there are significant potential impacts to cultural resources and traditional areas that are important for Nevada's tribes. For any mining and extraction project, it is important the permitting agencies and the project proponents have early, frequent, and transparent communication and engagement with tribal nations.

There has been a great focus on lithium, which is appropriate, but we need to look more broadly than lithium. The Nature Conservancy has identified at least 58 minerals that are critical to the energy transition. It is highly probable these minerals will increase in demand, which means more exploration and potential mining. Exploration and early phases of mines have already begun for cobalt, nickel, and vanadium in Nevada. The USGS has put \$320 million to finding those critical minerals. As you can see from this map, Nevada is at the center of the hunt. It is important to think about what the next mineral in the energy

transition rush will be because Nevada will likely play a role. To that end, TNC recently initiated a critical minerals conservation assessment in six western states, including Nevada. The goal of our study is to better understand the potential impacts of proposed critical mineral projects to biodiversity in communities and to help communities, decision makers, and stakeholders identify those areas of less conflict. Ensuring energy-related exploration occurs in areas where there is less conflict is better for biodiversity and our communities, and we believe it will actually enhance the pace of the energy transition. Thank you for your attention. I welcome your questions.

***Chair Pazina:***

Do we have any questions here in the south? Do we have any questions in the north?  
Assemblywoman La Rue Hatch.

***Assemblywoman La Rue Hatch:***

Thank you for presenting on this. I was heartened by the results that showed all the mining claims you looked at. I want to clarify, there are almost 22,000 lithium mining claims, but fewer than 50 of them are in areas of concern. Is that correct? The majority of them are in areas where it is not harmful. Is it possible to mine lithium without being harmful to the species and the environment?

***Ms. Moan:***

We looked at the number of mining claims, which was 22,000 at that time. We did not fully analyze 22,000 mining claims. From there, we delved down and identified 40 projects in Nevada that had significant interest. We analyzed them from there. The result was 14 special status species, but there were hundreds of species that each of the projects interacted with. The special status species are those the State of Nevada has determined to be special status species.

***Assemblywoman La Rue Hatch:***

There are, obviously, impacts from all of these, but there are some that are more or less harmful than others? Is that the results?

***Ms. Moan:***

That is correct. We believe there are projects proposed in places that have higher conflict, and there are projects proposed in places that have lower conflict. To understand that conflict, more analysis is needed of the biology and hydrology at each site.

***Chair Pazina:***

Is there anyone else from the south or north? Assemblyman DeLong, do you have anything else?

***Assemblyman DeLong:***

I want to clear up for the Committee Mr. Donnelly's comment that DLE does not have a regulatory structure is inaccurate. The BLM, the Nevada Bureau of Mining Regulation and Reclamation, and the Division of Water Resources all have an existing regulatory structure that cover those type of operations.

***Chair Pazina:***

Mr. Donnelly, do you have any closing comments? [He did not.] Ms. Moan, this was such an interesting presentation. We appreciate the hard work done on the study. Do you have any closing comments? [She did not.] We thank both presenters for taking the time to present with us today. That will close out Item V on the agenda.

**AGENDA ITEM VI—PRESENTATION ON THE IMPORTANCE OF LITHIUM MINING AND PRACTICES IN NEVADA**

***Chair Pazina:***

We will move to a presentation on the importance of lithium mining and practices in Nevada. We will hear from Amanda Hilton, President of the Nevada Mining Association (NVMA), and Kristi Schaff, Senior Specialist with Nexus Environmental Consultants, who are joining us today in Las Vegas. We thank you for joining us, proceed when ready.

***Amanda Hilton, President, NVMA:***

Good morning, Chair Pazina and Committee Members. Thank you for having us here today. I would like to start with a little background information about the NVMA. This Association was originally founded in 1913. Our mission today is to unite, educate, advocate, and serve as the public voice of Nevada's modern mining industry. The NVMA has hundreds of members representing every part of the mining supply chain starting with exploration, discovery, development, construction, operation, production, closure, and reclamation. Our members are operators, suppliers, and individuals. ([Agenda Item VI](#))

Today, we have talked a lot about critical minerals. I want to give some background information about the critical mineral designation. The Secretary of the Interior has been given the responsibility to identify minerals that are essential for use and face supply chain vulnerabilities. Essential for use applies to health care, transportation, power generation, consumer electronics, and defense. There are several minerals that have been identified as critical, as Ms. Moan pointed out. In Nevada, we are currently mining lithium, copper, barium, and magnesium.

In the U.S., there is one operating lithium mine. That operating lithium mine is in Esmeralda County. It is the Silver Peak property located in Clayton Valley. That one property constitutes approximately 1 percent of all lithium production in the world. Besides the Silver Peak property, Lithium Americas has a fully permitted property called Thacker Pass. That is in the construction phase. Once they have completed phase one and phase two construction, this property will produce enough lithium to power approximately 1.6 million EV batteries per year. Production is expected in 2027. That property did receive a more than \$2 billion loan from the U.S. Department of Energy (DOE). Another property is the Rhyolite Ridge property, owned by Ioneer. It is in the permitting phase. If that permitting is approved, and once that property is constructed, they will be producing enough lithium to power 400,000 EV batteries per year. In addition, they will be producing a boron co-product that will produce approximately 10 percent of worldwide production of boron. There is only one other boron property in the U.S. today. The Rhyolite Ridge property also received a DOE loan in the amount of approximately \$700 million. These are the only three lithium projects that are likely to come online in this decade. There are a lot of claims outstanding, but these are the only three that will come online in the coming years due to the robust permitting process required.

On both sides of the aisle, at the state and federal levels, there has been support for developing lithium mining properties in our State. I will read a quote from Senator Catherine Cortez Masto, "In order to meet our climate goals, we need to responsibly mine and process critical minerals right here in Nevada." Finally, a quote from Governor Joe Lombardo, "Nevada is positioned to be ground zero for the energy transition and to play a key role in securing energy independence and security of the United States." We were asked today to primarily discuss the permitting process that exists at the federal and state levels. At this time, I would like to turn the presentation to Kristi Schaff, who works for Nexus Environmental Consultants.

***Kristi Schaff, Senior Specialist, Nexus Environmental Consultants:***

I want to talk about the existing permitting process we have in place and how lithium fits into that permitting process. The first thing we wanted to do is show a map of the permitting process for a mining operation in Nevada [A map was shown in the Committee room but was not submitted as a meeting material.] You can see it is quite a lengthy process. It is quite a complex process. You can see the different connections, how the different permits interact with each other, how they are connected, and how the process proceeds. Nevada is 85 percent federal land, so today we will talk about permitting on both the federal and state level. That means most of the mineral projects in Nevada have to go through federal permitting because 85 percent of the land is on federal.

Permitting a lithium project—as we have discussed, there are not a lot of active, ongoing lithium projects in Nevada. Permitting a lithium project may seem new, but it is not. It is similar to the existing permitting process we have for existing mining projects. Every mine project goes through a process up front where the specific permits they need are identified at the federal, county, and state levels. All these permits are specific to each project. In that sense, the existing permitting process we have in place can be applied to lithium.

Today we talked about how there are a lot of existing lithium claims in Nevada. One thing I wanted to explain is a lithium claim does not mean a lithium mine. It can be a long and uncertain process from staking a claim to developing a mine. The initial exploration consists of multiple claims. It is not like one claim is one exploration project. It is multiple claims to an exploration project. It is potentially even more claims when you move on to develop a mine. Even though there are multiple claims staked, I wanted to make sure it is understood that it takes multiple claims to get to a mine.

We have a couple of slides to discuss the existing level of oversight and the number of agencies that currently have oversight and existing permits for projects in Nevada. Same thing on the federal side—there are a number of different agencies that already have regulatory authority over permitting on the 85 percent of our federal land. Again, this is project specific and site specific. Not all these agencies will be involved in all the projects; it will be determined based on the location and the specifics of each project. In addition, there is also county and local permitting involved. It is not consistent across the board. Every county has different regulations. Every project has different specifics. Some projects may need an encroachment permit from the Department of Transportation, while others do not. Some projects may need a building permit, while others do not. Those are all identified upfront in the permitting process.

We are going to talk about the federal permitting that takes place for a mine. The exploration or mining company will start out by submitting an exploration plan or a mine plan of operations. These, especially the mine plan of operations, involve a lot of engineering, design, and background work to develop that document. This will include the

layout, specifics, materials thereafter, disturbance areas, and many other details of the projects. In addition, there will be reclamation permits and bonds required to put in place. That plan of operations will then move through to the NEPA process on federal lands. The NEPA process requires an extensive amount of baseline data to be collected. Again, this is site specific. In general, you are going to have to collect air quality data. You are going to have to collect socioeconomic data of the existing communities you are in. You are going to have to talk about environmental justice communities. You are going to look at the biology specifics of the location you are looking at. This will include wildlife biology, as well as botany, and a review of sensitive, threatened, and endangered species. There will also be water studies for surface water, groundwater, and water quality. There will also be a review of existing cultural resources in the area.

The NEPA process involves cooperating agencies. Other agencies, federal, state, and local, who have regulatory authority are invited to participate. Often this can include the DOE, U.S. Fish and Wildlife Service, the Environmental Protection Agency, the Nevada Division of Environmental Protection, Nevada's Department of Wildlife (NDOW), Nevada's Department of Transportation (NDOT), and National Park Service. Local counties and cities can often be involved in the process. They are engaged early on and have the opportunity to be involved in the process and voice concerns prior to documents being issued for public [input]. They are involved with the federal agency, BLM or U.S. Forest Service throughout the process.

The other important portion of the NEPA process is the public comment input periods. During that process, you have an opportunity to provide what are called scoping comments. This is upfront with a short description of the project where you can provide your input. For example, "I am concerned about this project because it is located next to this" or "I am concerned about this project because how is it going to impact these species?" After the analysis, and the document and the EIS is completed, that will be issued and also provided for the public's input. They can review the document and provide comments more specific to the analysis that was completed.

There are multiple permits through the State: reclamation permits; water pollution control permits; underground injection control permits; air quality permits; water rights; and the greater sage-grouse conservation credit system. Of course, this is specific to each project. If your project is not in sage-grouse habitat, you are not going to apply for those permits. If your project is not injecting water, you are not going to go after an underground injection control permit. One thing to note about this is almost all these permits have a public comment and input period as well.

It does take seven to ten years to permit a mine. That is just a mining project. The piece that comes before that is when the company does exploration, they also have to get an exploration permit. It may take them two to three years to get an exploration permit. When they have enough information to know they have a resource and develop a mine plan, they can then move on to that mine permit. That is typically about a seven-to-ten-year timeline by the time they collect the baseline data and provide that information. I am going to turn it back over to Ms. Hilton.

***Ms. Hilton:***

It is difficult for us to distill down a seven-to-ten-year permitting process in a few moments, but thank you for this opportunity. I want to close this presentation by taking a quote out of the recently issued Interagency Working Group on Mining Laws, Regulation, and Permitting. The Biden-Harris Administration charged the DOI with developing a report with a goal to uphold the strongest environmental, labor, and community engagement standards. In that



report, the State of Nevada was called out as the best model that should be adopted for permitting processes across the nation. The combination of the federal and state permitting processes are viewed as the best-in-class. We would like to welcome any questions at this time.

***Chair Pazina:***

Before we get to any questions, I want to thank the NVMA for sharing the permitting process with us today. Due to scheduling conflicts, both the Division of Minerals and BLM were unable to attend to share this with us. We understand what a big lift this was. We appreciate your sharing with the Committee the efforts that go into the permitting process. Do we have any questions? [There were none.] It looks like you managed to distill that information so well it precluded any questions. We appreciate the presentation. Again, due to scheduling conflicts, we understand this was a huge lift for your team. We thank you because this is important for the Committee to understand. With that, we will close out this item.

**AGENDA ITEM VII—PRESENTATION ON THE CURRENT LITHIUM INDUSTRY LANDSCAPE IN NEVADA**

***Chair Pazina:***

We will move to a presentation on the current lithium industry landscape in Nevada. We will hear from Caleb Cage with the Nevada Battery Coalition via Zoom. When you are ready, please begin.

***Caleb Cage, Executive Director, Nevada Battery Coalition:***

Thank you, Chair and Members of the Committee. I am pleased to have the opportunity today to provide you a presentation on the current lithium landscape in the State of Nevada. While we are talking about lithium, this is about the battery storage landscape here in Nevada. It is about the entire supply chain from exploration and extraction all the way to recycling. I am looking forward to having a conversation with you today, presenting on our organization, as well as answering any questions you may have. ([Agenda Item VII](#))

I would like to set the stage with a statement about who we are and why we are here as the Nevada Battery Coalition. As you have heard from the previous presentations, Nevada is emerging as a leading battery center in North America. Every stage of the energy storage supply chain, from exploration to recycling, is present and is continuing to develop within our State. It will continue to grow and is poised to continue to grow. The current investment in this industry has produced profoundly positive environmental, economic, and national security advantages, all of which are strengthened by uniting the industry through the Nevada Battery Coalition, on whose behalf I am here today.

Let me start by telling you about the Nevada Battery Coalition and how we came to be. In November 2022 I began joining calls with various industry members throughout the State to discuss the importance of this industry in our State from an economic development, workforce development, and also from a national security and environmental standpoint. We began talking about what we wanted and how we wanted to position ourselves going forward. In February 2023, we had a soft launch of our organization and announced we would be forming later in the year. In fact, a month and a half later, at the end of March, we were incorporated. By the middle of last year, we had our first membership drive establishing ourselves as a membership—not 501(c)(6) yet—but trade association here in

Nevada. We continue to pursue federal Internal Revenue Service (IRS) designation as well. In December 2024 we held our annual meeting and elected our Board Officers. Nicole Cook from Panasonic Energy of North America serves as our Chair. Tim Crowley from Lithium Americas serves as our Vice Chair. Alexia Sober from Comstock Metals serves as our Secretary. Dominic Sinnott from Dragonfly Energy serves as our Treasurer.

As I alluded to previously, our mission and focus is to: ensure public awareness of the importance of this industry in our State and how important Nevada is to the future of this industry in our country; promote the industry, whether that is within regions, work opportunities, or letting people know the value of the jobs in this industry in our State; and finally, working with our member companies and workforce economic development partners throughout the State to ensure we are building the supply chain and ensuring we are doing everything we can to provide the workforce development capacity for the supply chain as well.

Currently, the Nevada Battery Coalition has 22 member companies. These are dues-paying members. We also have a number of other organizations and public agencies that are affiliated with us, but these are dues-paying members of our organization. Each element of the supply chain—upstream, which is your exploration and extraction side of the supply chain; midstream, which is chemical, manufacturing, and engineering; downstream, which is product finishing as well as recycling sides of the supply chain—are all represented within the 22 members of the Nevada Battery Coalition. We also represent startup companies, some that are entrepreneurial, some that are midsize, and some that are major producers here in the State like Tesla, Panasonic, Redwood Materials, and others who are well established at a national level as well. Not only are each of the upstream, midstream, and downstream parts of the supply chain represented, but each of the stages of the supply chain are also represented by companies within our organization as well.

As I noted previously, the Nevada Battery Coalition recognizes alignment for Nevada's opportunity with a national opportunity. That national opportunity has been driven by the Biden Administration with support from our federal delegation as well. You heard the quotes from Senator Cortez Masto and Senator Rosen who have been incredible supporters of this industry at the national level. It is driving towards a national strategy of onshoring and friendshoring the battery storage supply chain as a critical part of the energy transformation underway here in the U.S. That also contributes to our energy independence, which I assume we all believe is an incredibly important part of not just our national security but our ability to continue to operate economically as well as our diplomatic and other needs throughout the nation and throughout the world. Finally, it is an opportunity to address decarbonization and economically diversify nationally. You are seeing growth in manufacturing in these areas, which provides economic opportunity to people throughout the nation as well.

This national opportunity aligns with a unique opportunity for the State of Nevada. Nevada is truly in an incredible position. As our colleagues at the NVMA said, we are leading in the model for responsible mining. Throughout the entire supply chain, we are leading in each one of these areas. Here are a few examples of Nevada's ability to lead at the national level. As the NVMA representative said, Nevada has the only operational lithium mine in the U.S. The next two lithium mines that are likely to make it through the permitting process are also in the U.S. [Nevada]. We agree that after those two, we are looking towards the end of the current decade and into the next decade before additional lithium mining operations are on board.

Additionally, Nevada is the only state in the nation with companies in all seven stages of the lithium supply chain. Why is that important? It is important because currently, the lithium supply chain spreads all over the globe from Asia, Australia, Latin America, North America, and Europe. The more we can onshore from a national level that supply chain to the U.S., the more efficient our process is. Nevada is the only state in the nation that has all that onshore here within one state. That does not mean we are set. That does not mean there are not weaknesses within that supply chain. That is certainly one of our issues and initiatives that we are working on. It means we have a head start and we are well ahead of other states. As the federal government and private entities continue to invest, and as we see the entrepreneurial spirit driving this industry here in Nevada and across the nation, we intend to and anticipate being a leader in this space.

In addition to those, a Nevada company has received the largest federal loan for a single natural resources project, a \$2.4 billion federal loan from the DOE for the Lithium Americas Project that was alluded to earlier. The University of Nevada, Reno (UNR), in addition to receiving a National Science Foundation grant, has also received phase one designation, 1 of 32 tech hubs in the country. The tech hub focus is on the battery storage supply chain here in the State. I know economic development will follow, and we will likely talk about the national workforce. A huge amount of the national workforce for the clean energy sector resides in Nevada. A 2022 report predicted a fivefold increase in global lithium demand through 2030, which Nevada is incredibly well positioned to benefit from that opportunity. Electrifying Nevada, building Nevada's battery supply chain, closing the lithium loop—all these terms are used to signify the importance of this industry from an economic development standpoint from the State of Nevada. That is not just economic development in the macro terms, but also in the micro terms, and how that benefits families across the State with well-paying jobs.

The national security interests and the State interests are aligning right now to Nevada's benefit. This is the critical onshoring and friendshoring efforts that are currently underway to bring the supply chain to the U.S., so we have more control over our energy destiny, more independence for national security, as well as for our environmental interests. There is a generational investment underway right now from the federal government in order to support the growth of this industry. This has come with bipartisan support from the Biden Administration, the Federal Delegation, as well as Governor Lombardo to ensure we are aligned with federal interest to benefit all Nevadans. There is incredible private sector innovation this is creating. There is an entrepreneurial boom within the State of Nevada, in my opinion, unlike we have ever experienced before. All of this is due, again, at the State level to the Governor's leadership and lawmaker's support, people like yourselves.

What kind of impact is this going to have? I have already talked about the incredible outcomes and opportunities at the national security level, addressing climate change, and economic stability and growth. Nevada aligning with this opportunity allows us to have the incredible opportunity to continue to diversify our economy, which began in earnest in 2010. This provides better jobs for Nevada's families in all parts of the State and for Nevada to lead in this critical area of energy transition. Madam Chair, Members of the Committee, that concludes my remarks. I am happy to answer any questions you may have.

***Chair Pazina:***

Do we have any questions in Southern Nevada? Assemblywoman La Rue Hatch may have a question in Northern Nevada.

***Assemblywoman La Rue Hatch:***

My question is on one of your members. I saw Redwood Materials is one of your Coalition members. I wondered if you could speak a bit more to that process of battery recycling—as you mentioned, it is critical to close that lithium loop—and maybe successes or challenges we are seeing in that space.

***Mr. Cage:***

I would love to be able to give you an overview of that process. Unfortunately, I am not an expert on it at all. Redwood Materials and Aqua Metals, which is another company in Northern Nevada, are two companies that are leading the space nationally on recycling these materials as they come in. I know Redwood Materials is continuing to build here in Nevada to make sure they can support the industry. This is a way for a significant percentage, upwards of 80 percent, of lithium that has already been put into batteries to be removed and put back into the supply chain. That is why this is referred to as a circular supply chain because recycling generates materials that can then go back into the process earlier. I would be more than happy to reach out to representatives from Redwood Materials, Aqua Metals, and others to provide printed material or videos on how that process works. Unfortunately, I get out of my depth extremely quickly on this important process.

***Assemblywoman La Rue Hatch:***

That would be fantastic.

***Chair Pazina:***

I am not seeing any further questions. Thank you, Mr. Cage, for your presentation. It was incredibly informative, and I think we all learned what friendshoring means today. With that, we will close out Item VII.

**AGENDA ITEM VIII—PRESENTATION ON LITHIUM AND ECONOMIC DEVELOPMENT IN NEVADA**

***Chair Pazina:***

We will move to a presentation on lithium and economic development in Nevada. We are going to hear from Bob Potts, the Deputy Director with the Governor's Office of Economic Development (GOED) to discuss lithium and economic development in Nevada.

***Bob Potts, Deputy Director, GOED:***

It is a pleasure to be here. I apologize on the front end that I do not have a set of slides or handouts to accompany what I would like to discuss. It is because I [recently] got done leading a river trip down the Colorado, so I am a huge fan of natural resources and preserving them, not just for us today but for generations to come. I feel the same way about strategic economic development. We need to think about how we have this conversation. It should not be an either/or but a both/and conversation and how we get this across the line. I would like to start with a high-level overview of what economic development is, what our Strategic Plan was and how that came out of that, and how the lithium loop fits into it. Most of my comments are going to fit in pretty close with what Director Cage talked about in the previous presentation, but it incorporates at a higher level all the conversations. I appreciate what everybody has brought forward here trying to find a

path through for this huge opportunity that is in front of our State and where it can bring us.

A lot of times people think economic development and economic growth are the same thing. Although they are highly correlated, they are different. Growth talks more about change over time. That is where we talk about job growth, population growth, income growth, and those kinds of things. Economic development talks about how that growth happens. Paying attention to the “how” leads to what the change looks like on the growth on the backside and where we are going with that. That is what the GOED is all about. It is what our Regional Development Authority (RDA) partners that we work with on this across the State to think strategically about how we are going to do economic development for the highest and best use—think about it like child development. When you raise your kids, you develop them up, you know some of them have more of a propensity towards math or history or English or music or sports or whatever it might be. We focus our efforts where our comparative advantage is, and we build on those strengths. We do not do it to the exclusion of the other things. They need to be fully functional adults when they finally hit the streets. It is the same thing with economic development. We need to look at what our comparative advantages are in this State, where we have huge opportunities, what our challenges are, where our weaknesses are, where the threats are and make sure we stay in front of them, say no to things that do not work, and say yes to things that do.

When we are talking about new industries, like we are talking about at today's hearing, we need to think about the appropriate ways to do this so everybody wins and we get across the line because generationally, we want to protect our natural resources. We also want to make sure there is economic opportunity that is sustainable over time. With that, a lot of times when you ask people, “What is economic development?” They say, “It is jobs, businesses, and those sorts of things.” Those are the outcomes of good economic development. Economic development includes things like thinking about workforce, real estate, capital investment, policy, our suppliers, and all these other things that go into it that set the context for us to be successful on our economic development efforts to get the highest and best out of all of this. In order to do that, you have to have partnerships across the board. There has to be a cohesive strategic approach to doing all of these things. At the end of the day, you get to enjoy the outcomes of great jobs that pay well and economic opportunity that lives on in a sustainable way.

One of the ways we think about this is export base and import substitution. Export base refers to what we produce here that is sold to consumers outside of our regions, outside of our State, that brings money back in. Leisure and hospitality have always been an export base industry in our State, and it has been great. We sell fun to a whole lot of people that live someplace else. The money flows back in, which grows the capacity, and we see all this growth and the spinoff effects. The downside of that industry is it is largely based on discretionary dollars. If there is a national or international recession, we suffer, and that leads us to this procyclical economy we have. We have higher highs and lower lows in the business cycle at the national level. A big part of economic development is where the whole diversification idea comes in to mitigate risk, like diversifying your retirement portfolio. Those are the elements that come into our Strategic Plan as we start thinking about things going forward.

A strategic plan—vision, mission, goals, objectives, strategies, tactics, and all the things that go into it—are all included in our Strategic Plan. Our Strategic Plan was built around a typical strengths, weaknesses, opportunities, and threats [model], but it is largely built on what happened in our first Regional Plan that came out in 2012. *Unify, Regionalize, Diversify: An Economic Development Agenda for Nevada*, was a title for it. The successes

we have seen out of that and the things that did not work too good—for the most part, our new strategic plan that was released a year ago—we added stuff and updated it in December—is largely built on that, and the successes we have seen and all the activity that happened over the last 10 to 12 years—huge successes. Mr. Cage mentioned a few of those in his previous presentation. It is clear this industry has played a critical role. I am talking about the entire lithium industry as we started in its infancy back in 2013 and going forward to where we find ourselves now. He mentioned the entire lithium loop, as we call it. It is a thin line, and there is a lot of room for other people to come in and companies and opportunities to move forward on this. It is complete, whether you are talking about the extractive side of things all the way through the processing side of things, on to the manufacturing of batteries, to final demand—auto manufacturing with the Tesla semi-trucks and where that is going—and then to the recycling side where we reinject everything back into the system. It is a cool story.

As we build out this whole thing, you can see how it affects the economy. If you go back to the Coronavirus Disease of 2019 (COVID-19) downturn, we have seen Southern Nevada hit the highest unemployment rate ever seen in the country at 34 percent. It was a little over 20 percent in Northern Nevada as the economy shut down to keep people safe. It took about 11 months for Las Vegas to get to single digits. It took four months for the same thing to happen in the north. This is what diversification does, and it largely pivots around this industry and components of this industry. Reno was back to full employment in 11 months. It was 43 months before Southern Nevada got there. That is a big deal. That is motivation for us to think about what we are doing in economic development to help make sure we stand up resilience and sustainability, not only when we think about natural resources, but when we think about our economy as a whole. That is what got built into our State Strategic Plan.

On the back end at a high level in our State Plan, there are three pillars we are focusing on. It is called Connected Nevada, Electric Nevada, and Innovative Nevada. Obviously, the Electric Nevada has everything to do in this whole lithium loop space that we find ourselves. The Innovative Nevada, if you think about this industry as a whole—it was brought up in a number of presentations and a number of contexts in this hearing about how we are trying to figure this out as we move forward. That is the whole innovation side. What it brings along are a whole host of folks that are excited. They are entrepreneurs. They are figuring out how to do a better job with the direction our economy is going and the directions we need to go with these things. The Connected side gets us tied back to when we think about energy storage. When we think about transportation and the electrification of transportation and where it goes there. Everything we are talking about in this industry is integral to us accomplishing our Strategic Plan going forward, which is built on a full assessment of what has happened in the past decade, what was good, what is moving forward, and where the opportunities lie.

As Mr. Cage mentioned, we expect this industry to grow by five times by to 2030. That is five years from now. We currently have 25,000 people that are directly employed in this industry in one form or another, whether it is on the mining side or on the processing side or the manufacturing side. That is just the direct side. The spinoff effects of this, especially when you build out a full loop where you have a complete supply chain, go up exponentially. It is not a one-to-one relationship on what the spinoff effects are. It creates opportunity from folks that are in one portion of the supply chain to have mobility to go to other portions of the supply chain and how that all spins out. Nevada as a whole, because of our mining history and having these natural resources available to us, has a leg up specifically in this space to move forward. All of that said, 80 percent of all the lithium that is processed is done in China. Ninety percent of the lithium that is currently mined comes from

South America. We have got our nose under the tent on this whole industry. It is a matter of building it out and adding capacity as we go forward. It is the future. It is not a mature industry. Part of the challenge we have with our historical industries is they are becoming mature. For instance, we compete with the gaming industry with Singapore and Macau. We have seen how that plays out. This is a chance for us to rocket forward. It is a place to move forward, not just with the number of jobs in new industries where there is opportunity to move around, but also in what those positions pay and what the compensation for those positions are.

You couple that with what the federal political climate is when you talk about security, available funding that has been put out, the onshoring policy we have, and California's 2035 zero emissions policy. The other huge comparative advantage our State has is being next to California. Being within a day's drive of markets and suppliers and being able to be here is one of the advantages most states would crawl over broken glass to have. For us to take advantage of that in a way that supports the future of what is coming forward and for our children is paramount as we make these decisions and as we set the stage going forward. I appreciate the fact that this is not an either/or, it is a both/and conversation. Think about the State like it was a big piece of machinery. Where that piece of machinery produces the best is when all the pieces that are in it, whether it is the gears or the conveyor belts or the structure of the motor, if every one of them operates to their best, and nobody is jealous of what one is getting over the other one, that is when we get the highest and best out of the whole thing. If we focus on just one, whether to eliminate it or give it all the attention, it will be at the expense of everybody winning in this whole conversation. That is the goal of economic development and doing this smart. I appreciate your time. I am happy to answer whatever questions I can.

***Chair Pazina:***

Do we have any questions in Southern Nevada? Assemblywoman Considine.

***Assemblywoman Considine:***

I appreciate what you have said. On a larger scale listening to everything this morning, we are talking about the growing industry. We have heard a lot about how we are the only State currently having active lithium mines, and we are on the forefront of so many things. It is ten years before anything else happens. We have gotten the biggest federal loans and federal support. As you are talking about all this economic development, what specifically do you see that GOED would have to outlay or is planning to support that is not already in the works from everything else going on? If we seem to be the center of it, I am wondering what else we need to push forward financially from GOED.

***Mr. Potts:***

There is a whole bunch of things that need to happen when you have an industry in its infancy. It has taken off with the potential of growing five times out to 2030. That is pretty crazy. This industry is an innovative industry. It is figuring out too as it moves forward. It is figuring out better energy storage technology. It is figuring out better mobility questions. There is a whole host of things that are going on. We listened to a number of great presentations about the technology that is in it. Which ones should we do? Which ones should we not do? What ones make sense? There is all of that. One of the things that would be most helpful going forward is having support of innovation and startups and better understanding and providing the capacity for companies to be successful and for these people that are trying to move this forward to address carbon footprints and climate

change—to do it better. I think the innovation and what we have seen with the Tech Hub Grant and where the federal government wants to go with that was the National Science Foundation and the engines grants. When we think about the Knowledge Fund in our Office, when we think about all the things we could do to help stimulate and provide the resources and capacity for folks that are doing something great going forward, I think would be helpful.

***Assemblywoman Considine:***

There is nothing specific that you are thinking about? At this point, we are on the sidelines waiting to see how things work. If all these different entities, the startups and innovation things we already have, if those are chugging along, we are going to ride with it, but you do not have anything specific in mind right now?

***Mr. Potts:***

I could have a laundry list of things that would be helpful going forward. I think helping with the permitting process is key and shortening that up. Think about over the last decade how quickly Storey County was able to turn things around to make things happen out there. That is huge. Streamlining the processes for companies to get up and operational would be huge. Obviously, we deal with tax abatements and trying to invest in these companies as they are trying to get stood up and started up. Anything we can help on that front is critically important, so they stand up and can become fully operational, productive, and throw economic value back in. That yields huge returns at the end of the day. That is where I would stay in this front.

***Chair Pazina:***

We have a question from Assemblywoman La Rue Hatch.

***Assemblywoman La Rue Hatch:***

I had questions on what “resources” or “support” or “capacity” meant, but you mentioned permitting and abatements. We had a whole day where we were shown that lithium is here. They are not going anywhere else. We have all these companies already here, and they are not small companies. We have Tesla, Panasonic, and these multinational corporations. Why do these large industries that are not going to go anywhere else need our taxpayer money in order to come here?

***Mr. Potts:***

If you go back to 2013, Tesla was the biggest startup in the world. We were trying to figure out how to get this whole thing going. What they were looking for was a place to land and a place that would support them going forward. If you springboard forward where we are right now and what they have brought in, the wisdom of the investment that was made on that front end is pretty profound. Instead of \$3.5 billion in investment, they did \$6.5 billion in investment. Instead of 6,500 jobs, there are well over 10,000 jobs. The wages—that is one example in the middle of this whole thing. I think it always needs to be made clear that tax abatements are just that: they are abatements. They are not exemptions. They are investments in the future for return on those investments. They need to be done like everything else we are talking about here. They need to be done thoughtfully. They need to be done strategically, keeping in mind what the outcomes are. What kind of outcomes do you want? What jobs, technology—how does that fit into education? Where does that talk about opportunity? Where does that talk about in sustainability? That is part of the effort we



put into our Strategic Plan that outlines those kinds of things and where we want to go, what the goals are going forward, and the steps that are necessary to take. Those are just one tool in the toolbox that we do not want to compromise. Frankly, we are not competitive on that front.

***Assemblywoman La Rue Hatch:***

You mentioned being strategic, and I appreciate that. You brought up the Northern Nevada statistics. Obviously, I am a Northern Nevada representative. I thought it was interesting you mentioned we recovered more quickly than Southern Nevada, but we also have a higher cost of living. We also have higher housing and a significant strain on our infrastructure. What do those factors play in your considerations when you are bringing in these industries? What role do they play in having to pay back into the community in which they are taxing that infrastructure?

***Mr. Potts:***

We absolutely think about that. The Governor's Office of Economic Development is an agency of 45 full-time equivalents (FTEs). Most of those are tied up in different divisions that do not specifically talk in the business development area in this space we are talking about right here. There is no way we can do all those things. That is why it is so critically important we have partnerships when we talk about housing, transportation, and the growth pains you are referring to. They are growth pains whether you talk about school crowding, housing, and choke points in freeways. Those are all issues we have to address, and we have to do it in concert with the different projects we are doing at the time. Water scarcity is a huge one. A lot of times it is not known. There are times where we say, "No. That is not going to work for us. Maybe you need to talk to Missouri or whatever." One of the great advantages I have learned over time working in Nevada is because we have grown really fast, we are still a small state, and everybody has an opportunity to talk to somebody or if somebody knows somebody that they do not. There are all these ongoing relationships of working with the counties when we make these decisions. I think the RDA structure is paramount. They know what is happening on the ground and in their backyard and are able to coordinate those kinds of efforts going forward.

I have used a lot of metaphors here. Economies are like greased poles. You cannot stand still. You are either going up, or you are sliding down. You have to think about, do you want to be going up and figuring out how you are going to address these things as you move forward, not necessarily knowing all the answers on the front end but doing your best to be proactive and stay in front of those things, or are you going to stay where you are and be at risk of procyclical economies and high unemployment rates, being a victim of discretionary spending shortfalls, and those sort of things? We absolutely need to work together. That is why it is so important we have these types of conversations as well. I appreciate the question.

***Chair Pazina:***

I do not see any further questions in Southern Nevada, Northern Nevada, or over Zoom. Thank you, Deputy Director Potts and GOED for presenting today. That will close out Item VIII on our agenda.

## **AGENDA ITEM IX—PRESENTATION ON THE LITHIUM WHOLE-LIFE CYCLE**

### ***Chair Pazina:***

We will move to our last presentation related to lithium and lithium mining today. We will hear from Dr. Jeff Thompson, Executive Vice President and Provost at UNR, and Dr. James Faulds, State Geologist, Professor, and Director of the Nevada Bureau of Mines and Geology at UNR presenting on the lithium life cycle. We appreciate having you join us today in Las Vegas. Proceed when you are ready.

### ***Jeff Thompson, Ph.D., Executive Vice President and Provost, UNR:***

Thank you, Chair and Members of the Committee, for giving us this opportunity to speak with you about UNR and the work we are doing in the lithium realm. I am happy to be joined by Professor James Faulds, who is the Director of the Nevada Bureau of Mines and Geology and also the Nevada State Geologist, and Sheila Bray, our Director of Government and Community Engagement. I am here to discuss how Nevada has a unique opportunity to become the world's top producer of lithium, a key component of the clean energy transition, and how UNR is well-suited to support the State of Nevada in this emerging and important industry from mining, production, recycling, workforce, and community development. A lot of things I will be talking about today have already been presented, so I will be reinforcing those discussions. ([Agenda Item IX](#))

The demand for lithium and lithium-ion batteries is increasing, and it is going to continue to increase. The global lithium-ion battery market is projected to be worth more than \$400 billion by [2030], with the U.S. economy accounting for \$130 billion of the global demand. To meet this demand, the U.S. EV market will require about 412,000 tons of lithium carbonate equivalent mined and refined annually. Currently, the entire world is only producing around 400,000 tons. More than half of that is processed and produced in China.

How do we supply this industry with the lithium it needs to power our transportation and our industries moving forward? We believe this is Nevada's opportunity to capture the entire production chain of the lithium loop. Nevada is the answer to this challenge. Nevada is abundant in critical minerals, geothermal potential, and solar resources that enable our great State to drive high-tech industries fueled by clean energy. Nevada has the largest lithium mineral reserves in the U.S. and is the only state with an operating lithium production facility. However, this facility in Clayton Valley only produces around 5,000 metric tons per year—far less than what we need. The Nevada Tesla plant alone consumes nearly five times that amount. Luckily, Nevada has the largest known lithium deposits in the U.S., including Thacker Pass and Clayton Valley, among others. These are estimated to have around 113 million metric tons of lithium carbonate equivalent. Based on known resources, Nevada can boost its output more than 20-fold to around 113,000 metric tons each year. Adding this to a burgeoning lithium recycling industry would make Nevada a hub for U.S. lithium production.

This distinctly Nevadan industry not only has the potential to address our energy transition but will be a major economic driver for our State. Currently, mining in our State is about a \$9 billion industry and employs 41,000 people. Imagine what a lithium loop can bring to Nevada. Nevada is the only state in the U.S. that encompasses all elements of the lithium battery supply chain from deposits to processing, manufacturing, and recycling. Having companies like Tesla here has built an ecosystem for development and innovation. Companies like Dragonfly Energy in Reno have transitioned from a startup to a major lithium battery producer. The potential economic impact across Nevada is immense. In

2022, the lithium sector in Nevada employed around 9,000 people. Thacker Pass alone estimates employing 1,000 people during the construction and 300 people during the life cycle of the mine. The lithium workforce offers high wage opportunities for rural and urban communities alike in all aspects, including mining, production, and recycling.

Of course, UNR is ideally placed to serve all aspects of the lithium battery supply chain from deposit discovery to processing, manufacturing, and recycling. The University of Nevada, Reno has unique expertise in supply chain management, community and workforce development, the environment, and biology of the Great Basin through a number of specialized programs in the Mackay School of Earth Sciences and Engineering, the College of Engineering, and the Colleges of Business and Science. The University of Nevada, Reno is already providing the industry with cutting edge research and engineering needs to make Nevada a leader in lithium while focusing on ethical and sustainable mining practices. Our researchers are in the field and lab working on everything from novel, more sustainable lithium extraction processes to carbon capture, battery technology, and recycling innovation. With a focus on supply chain, community, and workforce development, UNR supports the entire lithium ecosystem from upstream and midstream, mining, economic geology, geological sciences and engineering, environmental justice, and workforce development to the biology of our great State through natural resources and environmental sciences, ecology, and conservation biology, and through the College of Engineering, battery technologies, recycling, and supply chain. Of course, our main product are graduates, the workforce. With a focus on supply chain community and workforce development, the University supports the entire lithium ecosystem, and our graduates are supplying the industry with a talented workforce already.

National and global demand for lithium continues to outpace the discovery of new deposits. This is a geologic map that was produced by the Nevada Bureau of Mines and Geology recently. It is a study of deposits in Nevada. Nevada is ripe with unexplored potential. To make Nevada the nation's leader in lithium production, we must be able to identify new deposits, develop models to predict where lithium and other critical minerals can be found, and responsibly extract and process these resources. This requires the academic expertise and research at UNR to better understand how lithium resources develop, and to reduce risk and impacts in exploration and development. One of the great things about this map is it shows an [underexplored] lithium resource, and opportunities in our State that are different than current mines and mine plans and build opportunities across the entire State for mineral deposits and mineral extraction.

What is needed to ensure Nevada leads in lithium? Now is a critical time for investment in lithium research. Resources are needed to address supply chain issues, increase economic development and competitiveness, and enhance national security. Several federal programs have already been established or expanded to support the critical minerals industry. Nevada has a chance to capture this opportunity now. The University of Nevada, Reno is ready to lead. However, additional investments are needed to unleash our full potential. These investments will help to ensure environmentally sound economic development and diversification in both rural and urban areas of Nevada. We are all fortunate to live in Nevada and to have the opportunity for us to research and work in Nevada. I hope you were inspired by this potential to make Nevada the national leader in lithium production. I want to thank you for your time. We would be happy to answer any questions you might have.

***Chair Pazina:***

Do we have any questions in Southern Nevada? Senator Flores.

***Senator Flores:***

You mentioned workforce multiple times. In general, that is a conversation we are having in every single committee room. You mentioned it broadly, but I am curious to know what is that looking like? What is that classroom structure looking like? That pipeline, within X amount of years, the masters—I am trying to understand that deeper if anyone could break that down.

***Dr. Thompson:***

It is a complicated question and is sometimes difficult to answer. We already have a lot of our graduates who are working in these industries and developing these industries through innovation and research. Part of it is the industry is changing so quickly. We are also getting feedback from the industry on their needs as we go forward. Certainly engineers, recycling and chemical engineers, metallurgical engineers, mining engineers, economic geologists, and the supply chain. Nevada has a lot of unique opportunities on supply chain on how to get materials from one area to another, whether you are doing processing or recycling. Of course, our communities—how to have people of expertise in planning and community planning when we are looking at schools, hospitals, and all the things you need for quality of life across our State. There are some specific places where I know we need support. It is going to be across all higher education, to be honest with you, from having electricians and millwrights to having Ph.D. chemists who can design new ways for carbon capture.

***Senator Flores:***

I know one of the conversations we have been having throughout the day and has been ongoing for years in Nevada is how we balance the obligation we have to do this responsibly, with ensuring the industry is making money. We see how many humans are being fed by this industry now. I am curious to know how the academic side weighs that. On the one hand, you are creating a pipeline and students are excited about the opportunity of longevity, having a great job, strong benefits, and working for a powerful industry. How is the conversation happening in the classroom on the responsibility side, so we are not just encouraging the student that this is a great opportunity to work? We have to make sure that longevity means we are all collectively working through a responsible approach to doing all this. I am curious to know how the academic lens is approaching that.

***Dr. Thompson:***

This is a space we have been working in for a long time. When we look at responsible development and sustainability, it occurs across many aspects of our institution, whether it is economic geologists making decisions on environmental impact or possible environmental impact, natural resources and environmental sciences evaluating water use, or the engineers looking at technology. We are reducing carbon emissions. For example, at Thacker Pass, our faculty have worked hard to help them reduce their carbon emissions, but also to limit water use in Nevada, which is also an important part of this. The next part is also what it means to be responsible in a community and look at how we are going to support or have our students ready to support communities and be part of communities. Looking at the longevity of economic development across the community, this is not something that ends. We expect it will go on for generations. I would yield to Professor Faulds.

***James Faulds, Ph.D., State Geologist, Professor, and Director of the Nevada Bureau of Mines and Geology, UNR:***

One aspect that is foundational is the generation of public goods, such as those geologic maps, which are produced in this case by a State agency, Nevada's Geological Survey, known in Nevada as the Nevada Bureau of Mines and Geology. Every state has such a survey. We generate those geologic maps, which are fundamental in terms of understanding our natural resources and also the deposits in the area that are relative to how you might develop infrastructure or develop that resource in the most sustainable and responsible way. We have to understand that picture so you do not develop an area that might be prone to landslides, for example, or prone to other natural hazards or perhaps be environmentally sensitive. Those public goods are foundational and important not only for industry evaluation of resource potential, but they are also important for development and sustainable responsible development.

***Senator Flores:***

I appreciate that because I know there is a huge concern about how we do this responsibly. I think you have the biggest role because if the workforce is coming from our institutions, and every individual that is going to be out there having this opportunity of a job is also thinking of how we ensure this is the best approach for everyone, I think that is the most powerful role, more powerful than even what we can do with legislation, what the industry is saying they are doing, or somebody is suggesting they are not doing. I think that is going to be the most powerful balancing act, that classroom you have, so I wanted to say thank you.

***Chair Pazina:***

I believe Assemblywoman Considine has two questions.

***Assemblywoman Considine:***

I am pleased to know our State institutions are involved in this entire area of mining and this growth in lithium and becoming such an integral part of something that affects the globe. I was curious about UNR's role with working on the current cutting edge DLE. Do you have graduates working with Clayton Valley? Is UNR as an institution becoming a partner and taking some ownership—ownership may not be the right word—of the DLE process? If this is going to be so cutting edge and changing, I would love to see the State of Nevada be at the forefront and having that foundation for future growth.

***Dr. Thompson:***

The answer is absolutely. From our faculty members who are working in the area and have expertise to our graduates who are also part of this process, but also in a consultative area. Our faculty have a lot of connections with these industries, and they ask us questions. It is a way for us to have a dialogue and engage with the technologies going forward because this is a rapidly changing and innovative industry at the moment. There is still a lot we are learning as we move forward. Absolutely, whether it is Professor Faulds or others, we have worked in this space for a long time and continue to do so. Sometimes we are working with our own graduates as we are having these discussions.

***Assemblywoman Considine:***

It is great to know that Nevada will be the world leader in things that are going on in the future. You mentioned we are still 66 percent short of the estimated U.S. requirements for lithium for 2030. Does that incorporate any of the recycling? Do we know what the plans are or what our return will be on recycling, and if that will have any balance on this need?

***Dr. Thompson:***

This is a little outside of my expertise. From having discussions with the recyclers, they are developing technologies as they are recycling. The other piece is the actual feedstock, where are they getting the materials to recycle? Some of it is coming from the Tesla plant for batteries that do not meet quality control and then they are recycling them. Some of it is coming from handheld devices, power tools and things. As we go forward, that industry is developing new technologies and new processes. They are ahead of the recycling for automobile batteries at the moment.

***Assemblywoman Considine:***

I know you can go to certain zoos and bring your phone to be recycled. Should we as a State be creating more vibrant recycling with anything that has any of these precious metals so we can help push this recycling forward?

***Dr. Thompson:***

Again, I am not the expert. A lot of the recycling, for example Redwood Materials, comes from those bins. I think anything as a State we could do to encourage recycling would support the recycling industry in our State.

***Chair Pazina:***

It is always wonderful to hear what the universities in the State are doing to prepare the next generation of our workforce and to ensure we are taking advantage of these industries. With that, we will close out Item IX, which was our last presentation related to lithium and lithium mining.

**AGENDA ITEM X—PRESENTATION ON WILDLIFE CROSSINGS**

***Chair Pazina:***

We are going to move on to our final presentation for today on wildlife crossings. Nic Callero, Senior Officer with The Pew Charitable Trusts, is presenting from Las Vegas. We thank you for joining us today.

***Kyle Davis, The Pew Charitable Trusts:***

We are looking forward to talking about this issue with this Committee. I want to thank the Members of the Committee and Members of the Legislature in general. Last session, the Legislature unanimously approved AB 112 that invested resources in this issue. We are here to talk about what is going on with that and what we see on the horizon when it comes to this issue. With that, I will turn things over to my colleague, Mr. Callero. He will walk you through it.

***Nic Callero, Senior Officer, The Pew Charitable Trusts:***

I want to thank the Committee for the invitation to speak to you today about an issue that is important to Nevada. The last time I spoke on the issue of wildlife crossings to the Legislature was during the 2023 Session in support of AB 112, which successfully created Nevada's Wildlife Crossing Account. I know that bill was supported by many of the people in this room. I want to thank you for that. Today I wanted to revisit the same subject matter, update the Committee on progress, and discuss how Nevada can continue to lead on this issue. ([Agenda Item X](#))

For those who may not be familiar with Pew, our U.S. Conservation Program seeks to sustain biodiversity and resilient ecosystems by collaborating with policymakers, communities, tribes, and many others. We work with stakeholders to improve public policy using new science and research. The identification and protection of wildlife migration corridors is an important part of our work. There are two primary threads I am going to be touching on, the first being wildlife vehicle collisions impacts on people and the second being how busy roads and highways impact wildlife and habitat.

Each year, according to NDOT, more than 500 reported wildlife vehicle collisions occur in the State, costing the State close to \$20 million. There is a significant caveat with that 500 number: collisions with deer and other large animals are notoriously underreported. Nevada's Department of Transportation estimates that less than 10 percent of these collisions are reported in the State, which would make that 500 number closer to 5,000 wildlife vehicle collisions annually in Nevada. To add a bit of perspective to that 5,000 number, the majority of those collisions are with mule deer. In 2023, according to NDOW, the total number of mule deer legally harvested by hunters was under 3,500 animals. If you compare those two numbers, you can see how large of an impact vehicle collisions, specifically on mule deer, are having on an annual basis throughout the State. These collisions have a monetary cost to society. Nevada's Department of Transportation partnered on research in 2022 that priced out the average collision cost by species. The average national cost of a single deer collision is upwards of \$20,000, elk upwards of \$75,000, and a moose collision is closer to \$110,000.

On the habitat side, linear infrastructure like roads fragment habitat and migration routes limiting access to important habitat—multiple studies and research show habitat fragmentation can reduce biodiversity by up to 75 percent. Climate change is exacerbating these impacts. Thankfully, there is a solution. It is a solution Nevada is familiar with: wildlife crossings. Wildlife crossings are highly effective at reducing crashes. We know this. They improve safety for animals and humans alike. They facilitate a central wildlife movement, making herds more resilient in the face of climate change. Wildlife crossings connect habitat and facilitate critical ecological processes. In addition to improving habitat connectivity, properly sited wildlife crossings reduce collisions by up to 90 percent. We need to look no further than here in Nevada. Highway 93 near Elko was the State's first project specifically for wildlife. Post construction monitoring found over 35,000 mule deer used that structure in its first four years resulting, in a significant reduction in wildlife vehicle collisions. To date, more than 120,000 crossings by mule deer have occurred on that one structure. If you think about it, that is 120,000 times that an animal was removed from the roadway, making that road safer for people traveling as well as connecting important habitat for migrating wildlife. The last point here is wildlife crossings are a sound investment. They pay for themselves. Based on the overall societal cost I mentioned, properly sited wildlife crossings and associated fencing will pay for themselves in the long run. They are a sound investment.

Nevada does continue to lead on this issue on a variety of fronts. On the construction side, Nevada has a long history of leadership. They have 79 animal crossings in place for both large and small animals, including six overpasses. On the policy side, Nevada continues to lead as well. I mentioned AB 112 passed in the 2023 Legislative Session, which created Nevada's first Wildlife Crossing Account as well as a \$5 million investment into that account. That is a significant step and significant framework to build on into the future. I will also mention on the research and data side, Nevada continues to lead. They are leading the way on mapping migration corridors with Global Positioning System (GPS) collars. Nevada's Department of Wildlife continues to lead the way in working closely with NDOT in identifying these hotspot locations where new wildlife crossings will most benefit road safety and habitat connectivity.

Despite this, there remain challenges. Those challenges are in regard to funding. State governments struggle to obtain adequate funding sources for managing and maintaining existing infrastructure, which can impact the ability to pursue new standalone wildlife friendly transportation infrastructure projects. Developing a dedicated fund at the State level would better position Nevada in a variety of different ways. Specifically, in attracting additional federal funding to leverage for these projects. This momentum is not unique to Nevada, as neighboring states across the West are taking action on this issue. In the last two years, State legislatures in California, Colorado, New Mexico, Oregon, Utah, and Wyoming passed new laws to conserve and restore habitat connectivity and invest general fund dollars to build new wildlife crossings. Pew has a unique perspective in that we worked closely with partners on the ground as well as policymakers to get many of those bills in the states I mentioned across the finish line. There is legitimate momentum around this issue. That momentum is driven by the science provided by NDOW on where these animals are moving across the landscape and where there are hotspot collision locations, but it is also driven by the availability of these federal funds. Specifically, a new program called the Wildlife Crossing Pilot Program kicked loose \$350 million for states to take advantage of. This momentum exists. Nevada stands to be able to take advantage of it and maintain its position as a national leader on this issue by prioritizing the allocation of the dedicated funding that would feed into that Wildlife Crossing Account created last year in the upcoming 2025 Legislative Session.

What is needed? I mentioned securing a dedicated funding stream for wildlife crossings would help on a variety of fronts. It would make Nevada more competitive for matching federal funding while also providing certainty for long-term planning, which would accelerate construction of these projects, making roads safer for people and wildlife. While that \$5 million investment from the last legislative session is a fantastic start to build on, it is important to remember that is a one-time appropriation. These projects are expensive and need additional funds for planning into the future. In 2022, Pew commissioned a study titled *Revenue Options for Wildlife Crossings* by economics firms which analyzed a dozen state revenue options that have a proven track record of success for funding transportation and conservation projects across the West. This analysis studied and ranked each of these potential funding options on a variety of different issues. That is a collection of a few of those. I will mention upfront that not all these options would be a perfect fit for Nevada. The point here was to start a conversation to spur ideas with policymakers on what could potentially be a good fit for Nevada looking into the future at ways to provide a dedicated stream of funds into that Wildlife Crossing Account to make roads safer while simultaneously connecting habitat for migrating wildlife.

I want to thank Chair Pazina and the Committee for the opportunity to speak here today. There are a lot of numbers and references to studies on those slides I presented. If any of those by chance jumped out to you, feel free to mention that. I am happy to connect that



study with you or even connect you directly to the source. I am happy to answer any questions you may have.

***Chair Pazina:***

I believe we have a question in Southern Nevada from Assemblywoman Bilbray-Axelrod.

***Assemblywoman Bilbray-Axelrod:***

I love these. I think they are so fascinating. We are being good stewards of the land by keeping our wildlife safe. In Nevada, we are not great about getting grants. We are doing better, but we are just not there in leveraging the money that is available. Do you have a specific number we should get to or specific things we may be missing so we can make sure to leverage that money? I would love to see those dollars come here.

***Mr. Callero:***

The answer is yes. One of the points I mentioned but did not dive deeper into due to time is the need for additional staff capacity for NDOW as well as NDOT to work on this issue. There is a significant amount of federal funding available on this issue as well as a variety of other issues that relate to this, specifically coming from the Bipartisan Infrastructure Law that is available right now. Additional staff capacity to apply for those grants and to make sure those grant applications are solid would be a significant step. I will stop there. I do not know if NDOT is available to answer that question as well. It would be a good question for them to touch on also.

***Nova Simpson, Wildlife Crossings Program Manager, NDOT:***

These structures are expensive, costing in the millions of dollars depending on the road we are going over as well as a lot of the different planning aspects that come with it. I cannot advocate for anything in any direction. I am here to answer questions and talk about the different details you might need for your consideration.

***Chair Pazina:***

We are curious if you have a priority listing from NDOT for crossings.

***Ms. Simpson:***

We are currently working on a new prioritization process. We do have one that we looked at primarily with respect to crash data. Our new process is not only looking at crash data but also that the conservation value, habitat connectivity, critical habitat, endangered species, and different things from the ecological side are being integrated into this. We are also taking a new, innovative approach and integrating disturbance. That includes potential urban expansion, mining, solar, et cetera, as well as climate change, so what will be effective not only now but into the future as we start to see those trends in climate. We hope to have that done by the end of this calendar year. We are looking at our prior one related more to crashes as we investigate every project moving into our planning processes at the NDOT level.

***Chair Pazina:***

More questions may arise, but I want to turn it over to Assemblyman DeLong, who had a question for our presenter.

***Assemblyman DeLong:***

Of the \$5 million that was allocated in the last budget, how much of that has been spent to date?

***Mr. Callero:***

My understanding is that money is still there in that account waiting to be spent, but I can turn that over to Ms. Simpson to verify.

***Ms. Simpson:***

We have been working towards getting ready to spend that money appropriately. Going back to the prioritization, we want to make sure we are using those funds in the best locations given limited funds are available. We have applied for some grants. Unfortunately, we did not receive the Wildlife Crossing Pilot Program. We are still waiting to hear on the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) funds. If we do receive those grants, we will be using part of that [money] for that. We are using NDOT environmental service funds to help us with the prior planning that is required for all of this, especially that prioritization. We have a big consultant team, so we are trying to leave that alone until we are ready to use it on structures.

***Chair Pazina:***

Assemblyman Gurr.

***Assemblyman Gurr:***

I was wondering about the difference between using the under-road crossings versus the overhead crossings and possibly what history you can tell me about the cost of the two on Highway 93 versus the costs on Interstate 80 (I-80) on the Pequop and Silver Zone. Maybe I should ask NDOW about that.

***Ms. Simpson:***

It depends on a lot of factors. Based on the construction costs of the time—a great example is Highway 93 where we were at a low time in our economy. We got those at great rates included with the larger project. Those were about \$1 million for the underpasses. The overpasses ran anywhere from \$1.5 to \$2 million. Fast forward to times where costs are a lot higher. Our most recent structures were put in on I-80. Four to five lanes of traffic in 2018 were around \$10 million apiece. Fast forward to now, we can estimate those costs have close to doubled. It depends on if it is being piggybacked with a larger construction project, if those costs are absorbed with the larger project, are they stand alone, and economic times and supplies. There is a lot of variability we have seen over the last ten-plus years with the construction of our structures.

***Assemblyman Gurr:***

What about usability by the wildlife for the underground versus the overpasses? I would guess NDOW has done a study on that, but I have not seen any numbers in the last few years about what they are doing and what their usage is. The underground crossings are going to be a lot less expensive. The overheads are costly, especially when you are going over I-80.

***Ms. Simpson:***

It depends on the species and what they are more adaptable to. Some species adapt to the underpasses well. Mule deer do well with the underpasses, assuming there are certain design features included, whereas other species like pronghorn are not keen to use those kinds of structures and would require an overpass. We are looking at a variety of things as we investigate these. The most recent study is Boulder City Bypass where we have an overpass and several large bridge underpasses primarily for bighorn sheep. To my knowledge, we still have zero hits on that, which is amazing for any project. It was thought that bighorn did not like underpasses prior to our project. We have found, given the large scale of the big structures we have there, they are bedding down and creating a little micro habitat in the shade of those large bridges during the hot months. It is specific to the target species and the conditions of those structures, whether they are smaller, larger, more open, et cetera.

***Chair Pazina:***

Senator Goicoechea.

***Senator Goicoechea.***

This comment is to NDOT as well. As you know, you are required on most of these highways and freeway systems to do the right-of-way fencing. I think we need to be looking at that and make those fences a little higher and use them to direct that wildlife to points where underground existing crossings will work, especially culverts. In Northern Nevada, if you have a cow herd on one side of I-80, you do not holler across that freeway, you take her underneath in existing drainages. Wildlife will adapt to that as well in some areas. You have to fence the right of way. Instead of building four feet game friendly fences, let us make them six feet so you in fact keep the animals off the freeways. As we are looking at this, you have 6 overpasses and 73 underpasses. With fencing, I think you can utilize more of those existing boxes. We need to get them off the highways. Let us be the most cost-effective we can. I know this presentation is about how we get more money in that pot to keep matching federal dollars. Coming out of the north where we run over a lot more of them than you do downtown on the Strip, it is an issue, and we need to fix it. There is a bigger penalty for running over one too.

***Chair Pazina:***

We appreciate the presentation. I do not believe we have any further comments or questions. Mr. Callero or Mr. Davis, do you have any final comments?

***Mr. Callero:***

I do not. Thank you for the opportunity.

***Chair Pazina:***

With that, we are going to close Item X.

**AGENDA ITEM XI—PUBLIC COMMENT**

***Chair Pazina:***

We will move to our final period of public comment. We are going to start in Las Vegas.

***Nick Christenson, Private Citizen:***

Thank you, Chair Pazina. I am very pleased the Committee chose to hear about wildlife crossings today, especially after the passage of AB 112 in the last session. I would like to bring a matter to the Committee's attention that may improve the effectiveness of some of these crossings. As everyone is likely aware, NV Energy is planning on building two new long-distance transmission lines through Nevada as part of the Greenlink project. The first runs along the U.S. 95 right of way between Las Vegas and Fallon. The second runs near U.S. 50 roughly between Ely and Fallon. These are two highways they expect to be potential locations for wildlife crossings. Along these transmission lines, NV Energy will be building electrical substations. These substations will be a magnet for industrial-scale solar farms, as every solar developer will want to install their acres of solar panels as near to the substations as possible as this will minimize their costs. These solar farms will likely be fenced in such a way as to route large animals around their panels rather than among them. Of course, what type of fencing they are going to use is going to be critical in their effectiveness in this manner, as Senator Goicoechea pointed out. It seemed to me this presents an opportunity. It might be beneficial to look at when deciding wildlife crossings near these substations along these routes. There may be considerable advantages to laying out the fencing boundaries of these solar farms such that they encourage the preferential use of these crossings by wildlife. Consequently, I would hope NDOW, NDOT, BLM, and the developers of the solar sites would be able to get together and discuss how they might work in conjunction to optimally design crossing and fencing near the solar farms in such a way as to minimize the number of animals killed, the amount of property damage, and potentially the number of lives lost on our roadways. I would encourage this Body to work with these organizations to try to make these more effective. Thank you for your time.

***Chair Pazina:***

I see no one else in Las Vegas. Do we have anyone who would like to approach the table in Carson City?

***Kassandra Lisenbee, Previously Identified:***

I want to speak to you today as an individual, not as a representative of Great Basin Resource Watch. I am highly aware of the nuanced conversation of mining. My great grandma moved to Lamoille, Nevada in 1930. She used to write activism letters in the town under a pen name because it was so scary to question the industry. This is something that has gotten better, but I am aware of the nuance of this industry. My grandpa was a miner for Newmont for over 30 years. He is now very sick. There are economics here, but there are people, and there is health, and we deserve a right to question and to push on how we make things better for our communities. We have heard about things like modern mining, and we are also hearing about new technologies. A lot of our abandoned mines come from what was at the time considered modern mining. There are still things we need to be cautious and think about as we are moving forward. We talk about economics in rural communities. I have seen many of my friends lose multigenerational ranches as mines come in and buy up all the water rights in the area. Mines usually operate for about 40 to 50 years, usually two to three generations. Then we see the boom-and-bust cycle of mining happening here with a lot of our abandoned towns. We also see mines like Pumpkin Hollow. We heard a little about economic stability of mine sites, but mines are highly susceptible to mineral prices of the economic abilities as well as the global economy. We see places like Pumpkin Hollow in Yerington that open and close depending on the price of the minerals. This is another consideration when we talk about long-term stability for our communities.

My own personal research has shown that in the Crescent Valley Water Basin, I estimate approximately—

**Chair Pazina:**

Ma'am, we have gone almost three minutes. If you do not mind wrapping it up.

**Ms. Lisenbee:**

I will wrap it up right now. There is a nuance to these conversations. I implore you to listen to more directly affected and tribal nations while having these conversations. Thank you.

**Deni French, Previously Identified:**

Thank you, Chair and Committee Members. I could not follow the person any more perfectly set for me to say ditto. Her insights and research far outweigh mine, but I can tell you about my observation about today. Beside the fact that I have appreciated each of the committees listening to things like the water matter that I came to weeks ago, the mining, and considerations of lithium and such, the economic aspects that were just brought up are important, but the nuances are equally. The Inter-Tribal Council of Nevada's presentation was amazing. The wildlife crossing touched me. I am more of an ecosystem person. The fight to save Ash Meadows and Death Valley is huge. What I failed to see here was that we were learning from the mines that exist now. Asia, Australia, and China are the main resources at this point. The U.S. is stepping into something that has not been, I feel, completely vetted. First off, lithium is not the only material in the batteries, and it has not proven itself to be as stable as they had hoped nor as easily mined as suggested. I would like to have this Committee and, in truth, myself look into what already exists as mining practices in those locations we are exploiting right now for the fact that we have not got our own. I do not want us to step into a field of endeavor without really understanding the place lithium has in our world. Many studies I have looked at, and I am no scientist by any means, but you can Google it. The basics for the wordage and the way to get in further and then from there it goes. Wow, talk about a rabbit hole. It suggests it is not the be-all and end-all. In fact, many countries are looking away—

**Chair Pazina:**

You are getting closer to two and a half minutes. If you would like to close with a thought, we would love to have you share it.

**Mr. French:**

I would love to have all of you look deeper. What we are having sold to us right now is an easy sell. It suggests we are going to have everything fixed. I believe it is the start of our questions. Thank you.

**Chair Pazina:**

Broadcast and Production Services, do we have anyone on the line for us?

**BPS:**

Yes, Chair. If you would like to participate in public comment, please press \*9 now to take your place in the queue.

***Fred Voltz, Private Citizen:***

Good afternoon, Committee Members. You have previously heard about how undemocratic, unrepresentative, and unconcerned the State Wildlife Commission and the State Department of Wildlife are towards representing the best interests of wildlife species and the overwhelming number of Nevadans who do not buy their licenses. Further proof of the overdue need for a complete review and study happened at the May 22 Finance Committee meeting of the Wildlife Commission. *Nevada Revised Statutes* 501.303 2(a) requires attendance at all Commission meetings by representatives from all County Advisory Boards (CABs). There are no statutory exemptions. Each county is supposed to have a CAB. Esmeralda and Storey [Counties] do not. Despite these black letter law requirements, the Finance Committee continues to propose, and the Wildlife Commission continues to approve, funding for the CABs when most do not meet locally, do not incur expense, and/or do not consistently show up at Commission meetings. On average, only a random 6 out of 17 appear at Commission meetings. What employer pays an employee for nonexistent work? What employee reasonably expects to be paid when the employee performs no work for the employer? The tacit acceptance of funding in exchange for nonperformance, both by the counties and by the Wildlife Commission, verges on fraud to the public. We need the study. Thank you. ([Agenda Item XI A](#))

***Chair Pazina:***

BPS, our next caller, please.

***John Hadder, Director, Great Basin Resource Watch:***

Thank you, Committee Members, for listening to all the comments and presentations today. Great Basin Resource Watch would also like to see a true circular economy, but let us be clear about what a circular economy is. True circularity means there is zero waste, and all materials are reused. To develop a circular lithium economy, which has also been referred to loosely as a lithium loop, we need to develop new technologies that are fully reusable and recyclable. Thus, the need for raw input materials should decrease over time, including mining. In addition, the economy needs to adhere to green chemistry principles, so we are not only minimizing inputs, but we are also using biologically and environmentally non-harmful materials. We also need to adhere to the principles of environmental and social justice. This means that disproportionately affected people need to be at the forefront. Discussions of streamlining permitting does not mean reduced engagement of the directly affected people and the public. Furthermore, engagement needs to be meaningful, which allows for an avenue for directly affected people and the public to have a say in what is permitted. This also means there needs to be increased transparency, so communities and the general public are fully aware of what is being proposed and the consequences of these projects, whether a mine project or other aspects of the lithium loop. Never is there a time to fast track and expedite mine permitting, even for lithium and other energy transition minerals. If anything, we should be more careful since each mine further erodes the ability of the planet to regulate climate. Expediting is a step backwards which will accept incompletely analyzed mine plans that allow avoidable environmental damage and run over concerns of directly affected communities. We need only look at the permitting process for the Thacker Pass Lithium Mine that triggered three lawsuits and—

***Chair Pazina:***

Mr. Hadder, we are over two minutes, if you would like to close out your comments.

**Mr. Hadder:**

Thank you for this time, the Committee's attention, and for your service to the State of Nevada.

**Chair Pazina:**

As a reminder to all speakers, once the two minutes is concluded, you are always welcome to submit your comments to the Joint Interim Standing Committee on Natural Resources as well to go on to the public record. I believe we might have one more caller.

**BPS:**

Chair, there are no other callers wishing to offer public comment at this time.

**Chair Pazina:**

Seeing no one else coming to the front in Carson City or Las Vegas, we are going to close out Item XI on our agenda. Before we adjourn, I have one last announcement. As mentioned at our last meeting, it is time to consider which bill draft request (BDR) we want to put forward as a Committee for the next legislative session. If you have BDR ideas you would like to suggest for consideration, please submit your recommendation along with appropriate background information by Wednesday, July 31, 2024, at 5 p.m. Additional instructions and a form for submitting BDRs that includes information to help us consider these recommendations may be found on the legislative website on the Committee's web page. Committee Members, please feel free to reach out to me and staff directly with ideas. Our next meeting will be held on Friday, August 23, 2024. This will be the Committee's last meeting as well as our work session. I am planning to Chair from Carson City for this meeting.

[Rita L. Ransom, Private Citizen, submitted written public comment for the record ([Agenda Item XI B](#)).]

## **AGENDA ITEM XII—ADJOURNMENT**

There being no further business to come before the Committee, the meeting was adjourned at 12:19 p.m.

Respectfully submitted,

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Seana McManus  
Research Policy Assistant

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Jann Stinnesbeck  
Principal Policy Analyst

APPROVED BY:

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Senator Julie Pazina, Chair

Date: \_\_\_\_\_



## MEETING MATERIALS

AGENDA ITEM	PRESENTER/ENTITY	DESCRIPTION
<a href="#">Agenda Item III</a>	Clifford Banuelos, Tribal State Environmental Liaison, Inter-Tribal Council of Nevada (ITCN)	Handout: Resolution of the Inter-Tribal Council of Nevada
<a href="#">Agenda Item IV A-1</a>	Mason Voehl, Executive Director, Amargosa Conservancy  Mandi Campbell, Tribal Historic Preservation Officer and Member, Timbisha Shoshone Tribe  Carolyn Allen, Chair, Amargosa Valley Town Board	PDF Presentation: Concerns Related to Lithium Development Near Ash Meadows National Wildlife Refuge
<a href="#">Agenda Item IV A-2</a>	Mason Voehl, Executive Director, Amargosa Conservancy  Mandi Campbell, Tribal Historic Preservation Officer and Member, Timbisha Shoshone Tribe  Carolyn Allen, Chair, Amargosa Valley Town Board	Handout: Link to Background Material Concerning Ash Meadows National Wildlife Refuge
<a href="#">Agenda Item V A</a>	Patrick Donnelly, Great Basin Director, Center for Biological Diversity	PDF Presentation: Studies and Concerns Related to Lithium and Critical Minerals Mining in Nevada
<a href="#">Agenda Item V B-1</a>	Mauricia Baca, State Director, The Nature Conservancy (TNC) in Nevada  Jaina Moan, External Affairs Director, TNC in Nevada	PowerPoint Presentation: Studies and Concerns Related to Lithium and Critical Minerals Mining in Nevada
<a href="#">Agenda Item V B-2</a>	Mauricia Baca, State Director, TNC in Nevada  Jaina Moan, External Affairs Director, TNC in Nevada	Handout: Letter from The Nature Conservancy
<a href="#">Agenda Item VI</a>	Amanda Hilton, President, Nevada Mining Association  Kristi Schaff, Senior Specialist, Nexus Environmental Consultants	PDF Presentation: The Importance of Lithium Mining and Practices in Nevada

<b>AGENDA ITEM</b>	<b>PRESENTER/ENTITY</b>	<b>DESCRIPTION</b>
<a href="#">Agenda Item VII</a>	Caleb Cage, Executive Director, Nevada Battery Coalition	PowerPoint Presentation: The Current Lithium Industry Landscape in Nevada
<a href="#">Agenda Item IX</a>	Jeff Thompson, Ph.D., Executive Vice President and Provost, University of Nevada, Reno (UNR)  James Faulds, Ph.D., State Geologist, Professor, and Director of the Nevada Bureau of Mines and Geology, UNR	PowerPoint Presentation: The Lithium Whole-Life Cycle
<a href="#">Agenda Item X</a>	Kyle Davis, The Pew Charitable Trusts  Nic Callero, Senior Officer, The Pew Charitable Trusts  Nova Simpson, Wildlife Crossings Program Manager, Nevada's Department of Transportation	PDF Presentation: Wildlife Crossing
<a href="#">Agenda Item XI A</a>	Fred Voltz, Private Citizen	Written Public Comment
<a href="#">Agenda Item XI B</a>	Rita L. Ransom, Private Citizen	Written Public Comment

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