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5 TRASH TO TREASURE: EXAMINING LEGISLATION TO SUPPORT

6 DOMESTIC CRITICAL-MINERAL RECOVERY AND RECYCLING

7 WEDNESDAY, JUNE 24, 2026

8 House of Representatives,

9 Subcommittee on Environment,

10 Committee on Energy and Commerce,

11 Washington, D.C.

15 The subcommittee met, pursuant to call, at 10:13 a.m., in Room 2123, Rayburn House Office
16 Building, Hon. Gary Palmer [chairman of the subcommittee] presiding.

17 Present: Representatives Palmer, Latta, Griffith, Carter of Georgia, Joyce, Weber, Pfluger,
18 Miller-Meeks, Langworthy, Fedorchak, Guthrie (ex officio), Tonko, Ruiz, Peters, Barragan, Soto,
19 Auchincloss, Menendez, Landsman, and Pallone (ex officio).

20 Staff Present: Ansley Boylan, Director of Operations; Byron Brown, Chief Counsel,
21 Environment; Sydney Greene, Director of Finance and Logistics; Christen Harsha, Senior Counsel,
22 Environment; Megan Jackson, Staff Director; A.T. Johnson, Special Advisor; Ben Mullaney, Press
23 Secretary, Press Office; Ryan Murphy, Director of Member Services; Seth Ricketts, Clerk,
24 Energy/Environment; Jake Riith, Staff Assistant; Chris Sarley, Member Services/Stakeholder Director;
25 Timothy Trimble, Staff Assistant; Matt VanHyfte, Communications Director; Jordan Antwi, Minority

26 Intern; Waverly Gordon, Minority Deputy Staff Director and General Counsel; Tiffany Guarascio,
27 Minority Staff Director; Anthony Gutierrez, Minority Professional Staff Member; Caitlin Haberman,
28 Minority Staff Director, Environment; Alyssa Kimura, Minority Intern; Emma Roehrig, Minority Staff
29 Assistant; Kylea Rogers, Minority Policy Analyst; Andrew Souvall, Minority Director of
30 Communications, Outreach, and Member Services; and Samantha Tate, Minority Intern.

31
32 Mr. Palmer. The Subcommittee on Environment will now come to order.

33 I will now recognize myself for an opening statement.

34 Good morning. Welcome to today's hearing of the Subcommittee on Environment.

35 A little over 2 months ago, this subcommittee held a hearing to analyze the impact of some of
36 our major environmental laws on access to critical minerals and minerals that form the products
37 essential to our healthcare, defense, transportation, energy, and telecommunication sectors.

38 The title of that hearing was "Help or Hindrance? The Impact of U.S. Environmental Laws on
39 Critical-Mineral Supply Chains, National Security, and Economic Growth."

40 In particular, we discussed some of the challenges associated with the Environmental
41 Protection Agency's, or EPA's, interpretation of the Resource Conservation and Recovery Act, RCRA.
42 While some of our witnesses explained that RCRA had been a hindrance, largely due to lack of
43 regulatory clarity, there were also opportunities for it to be a help.

44 Even as early as 1976, when RCRA was enacted to amend the Solid Waste Disposal Act,
45 Congress included in that law its findings that "methods are available to separate usable materials
46 from solid waste" and "the recovery and conservation of such materials can reduce the dependence
47 of the United States on foreign resources."

48 EPA has developed unique knowledge that should be leveraged to shore up domestic supply
49 chains and identify opportunities to facilitate recovery of domestic material from discarded
50 materials.

51 This experience is not limited to solid waste management. EPA also coordinates the
52 remediation of the Nation's most contaminated sites. In recent years, EPA has explored
53 opportunities to use innovative technologies to recover valuable materials by cleaning up these
54 contaminated sites. EPA currently manages a program called the Environmental Monitoring and
55 Remediation Technology Assessment, or EMRTAI, to identify and recover critical minerals and waste

materials at legacy mining sites.

According to the United States Geological Survey, the United States is entirely reliant on imports for 13 of the 60 mineral commodities on its 2025 list of critical minerals, and it is reliant on imports for over half of its consumption of another 20 minerals. Removing regulatory barriers to a more robust domestic recycling industry could allow us to recover more of these minerals from products already in the United States.

Deliberate Federal coordination has never been more important, with adversaries such as China demonstrating that they are willing and able to weaponize their control of crucial supply chains. Securing our fragile supply chains requires coordination across the entire Federal Government, and it is important for EPA to have a seat at the table.

To that end, we plan to discuss seven bills to eliminate unnecessary barriers to the growth of a strong domestic recycling industry, establish EPA as a leader of interagency efforts to recover critical minerals, and support the remediation of contaminated sites while identifying new domestic sources of valuable materials.

I hope we can continue working together with our colleagues on the other side of the aisle to reach a bipartisan agreement on these discussion drafts. I am encouraged by our initial conversations, and I look forward to finalizing bills that can advance with bipartisan support.

To help us in these efforts today, we welcome four witnesses.

First, we have David Klanecky, chief executive officer of Cirba Solutions. Cirba Solutions is a leading battery recycling materials and management company.

We are also joined by Dr. Jessica Dunn, scientist, clean transportation, at the Union of Concerned Scientists. Dr. Dunn specializes in lithium-ion battery sustainability research.

We also welcome Mr. Aaron Goldberg, a principal at Beveridge & Diamond. An environmental attorney, Mr. Goldman will call about his decades of experience with the Resource Conservation and Recovery Act.

81 Finally, we will also hear from Mr. Greyson Buckingham, co-founder, chief executive officer,
82 and president of DISA Technologies. DISA has developed innovative technologies to recover
83 minerals from legacy mine sites.

84 I thank all of our witnesses for their time today, and I look forward to today's discussion.

85 I now recognize the ranking member of the subcommittee, Mr. Tonko, the gentleman from
86 New York, for 5 minutes for an opening statement.

87 [The prepared statement of Mr. Palmer follows:]

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91 Mr. Tonko. Well, thank you, Mr. Chair.

92 Today, the subcommittee will examine seven bills and discussion drafts seeking to enhance
93 our national capacity to recover and utilize alternative sources of critical minerals.

94 While I do have serious concerns about a couple of these bills, including any codification of
95 President Trump's executive orders, I also believe several of these proposals warrant our further
96 attention.

97 Democrats on this subcommittee have long recognized the potential of resource recovery and
98 recycling to contribute to meeting our national critical-mineral needs. Recycling can provide
99 significant percentages of expected demand of key minerals needed for battery production, including
100 lithium, cobalt, and nickel.

101 This would provide us with a new, untapped domestic supply, not only reducing our current
102 over-reliance on foreign sources but also creating more sustainable supply chains by alleviating some
103 of the need for riskier environmental extractions.

104 With that said, I recognize that turning a battery into its raw materials and then back into a
105 battery is not an easy process. Batteries, when not properly handled or disposed of, do present
106 some risk to workers, nearby communities, and, yes, our environment. We know that has been the
107 case with lead-acid batteries, and it will remain true of lithium-ion batteries.

108 So, while I am open to understanding better some of the regulatory barriers that are making
109 it more difficult to add greater long-term circularity to our critical-mineral supply chains, I do not
110 believe this should come at the expense of fundamental environmental and worker protections.
111 And I do hope we can begin to figure out that balance today.

112 While the drafts under consideration today warrant discussions, I believe Congress can play a
113 constructive role in moving us even further toward a shared goal of secure domestic critical-mineral
114 supply chains.

Our environmental and safety regulations need not only be seen as a barrier to achieving our goals. States are already proving that smart regulations can push all stakeholders, from manufacturers to recyclers to individual consumers, to being part of the solution.

And I would again suggest that responsible end-of-life management of batteries through a national product stewardship program, like extended producer responsibility, can be an important step. Because, once we have gone through the trouble of importing critical materials, sensible collection, reuse, and recycling requirements can ensure that those materials are recovered. That is how we can build for long-term sustainable management of our critical-mineral supply chains.

And this type of more comprehensive approach to responsible end-of-life management of batteries is not only possible but preferable. It would guarantee valuable minerals are kept out of landfills while also mitigating fire risks and enabling the repurposing of batteries when possible.

I have been encouraged by the work happening at EPA under both the Biden and Trump administrations to examine this challenge. I do hope we can learn from that effort and determine what additional action from Congress may be necessary.

Finally, while I have mostly focused on batteries this morning, I am also encouraged by the Environmental Monitoring and Remediation Technology Assessment Initiative. If we can find opportunities for mineral recovery and legacy environmental remediation to work hand-in-hand, it could be a true win-win situation.

We must be careful not to create loopholes in the law to exacerbate environmental harms at these sites, but exploring how EPA can support emerging remediation technologies has potential. And that work could be further expanded to support other valuable, environmentally beneficial products, such as the mineralization of carbon dioxide.

Again, I want to thank the chair for today's discussion. There are some good opportunities to strengthen our domestic critical-mineral supply if we are able to unlock that potential while maintaining appropriate environmental safeguards.

140 With that, Mr. Chair, I thank you and yield back.

141 [The prepared statement of Mr. Tonko follows:]

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145 Mr. Palmer. The gentleman yields.

146 I now recognize the chairman of the full committee, the gentleman from Kentucky,

147 Mr. Guthrie, for 5 minutes for an opening statement.

148 The Chair. Thank you. Thank you, Chairman Palmer, and thank you for holding this
149 hearing. And I really appreciate all of our witnesses being here today.

150 This Congress, our Environment Subcommittee has explored creative solutions to identify
151 sources of critical minerals here at home so that we are less dependent on foreign adversaries like
152 China.

153 And I will say, I have become far more acquainted in the last couple years with this issue, but
154 our chairman of this subcommittee has been focused on this for years and is absolutely correct that
155 we have to deal with this and should have dealt with it sooner. But here we are.

156 So, for example, in June of 2025, this subcommittee held a hearing on the management of
157 coal combustion residuals and evaluated the potential recovery of critical minerals from coal ash.
158 In July of last year, this subcommittee met to assess the state of our domestic recycling industry and
159 opportunities to recover critical minerals from end-of-life electronics. This past April, we identified
160 opportunities to modernize some of our major environmental laws to eliminate unnecessary barriers
161 to stronger supply chains.

162 Securing access to critical minerals is a daunting task, with geopolitical tensions, trade policy
163 complexities, and economic rivalries complicating efforts to shore up our supply chain. This is why
164 it is essential for all of our Federal agencies to work together and harmonize their efforts to make
165 sure we are all rowing in the same direction.

166 The Environmental Protection Agency has unique expertise regarding recovery of valuable
167 materials from waste streams and the complexities of our domestic recycling infrastructure.

168 Today, we will consider seven pieces of legislation to further the recovery of critical minerals

169 from waste streams that are already located within our country and support the development of
170 domestic material recycling, recovery, and refining industries.

171 I hope this endeavor can be part of our committee's strong tradition of bipartisanship. One
172 of today's bills introduced, H.R. 3717, the Legacy Mine Cleanup Act of 2025, already enjoys bipartisan
173 support, and we will continue to work with our colleagues on the other side of the aisle to hopefully
174 reach bipartisan agreement on the three discussion drafts as well.

175 So thank you for being here. I thank all of my colleagues on this committee for willingness
176 to be open and work together for this absolutely critical part of our national security.

177 People, this is one of those issues -- I always say that if people fully understood the issue
178 before us, I think the country would -- it is one of these -- people ask me sometimes, "What do you
179 lose sleep over?" It is not having adequate critical minerals in our area and within our country.
180 Our dependency on China is just something we absolutely have to solve and, in a bipartisan way, we
181 will solve.

182 So thank you, and I yield back.

183 [The prepared statement of the chair follows:]

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187 Mr. Palmer. The gentleman yields.

188 The chair now recognizes the ranking member of the full committee, the gentleman from
189 New Jersey, Mr. Pallone, for 5 minutes for an opening statement.

190 Mr. Pallone. Thank you, Mr. Chairman.

191 Critical minerals are the building blocks of many modern technologies, from our cell phones
192 to clean-energy technologies like electric vehicles and solar panels. And as the world continues to
193 shift towards clean energy to reduce costs, the demand for these minerals will continue to increase.
194 And that is why it is vital that we work to bolster our domestic critical-minerals supply chain.

195 And, as we do that, we must also focus on critical-mineral recycling and recovery that
196 increases resource efficiency, reduces the need to mine new minerals, and reduces waste. And this
197 represents a true win-win for our environment and for our economy. For too long, we have
198 allowed valuable critical minerals to go to landfills, never to be recovered, and that has to change if
199 we want to remain globally competitive.

200 Domestic recycling of still-viable critical minerals also helps mitigate supply-chain
201 vulnerabilities. This is so important, considering the U.S. is dangerously dependent on foreign
202 adversaries -- namely, China -- for critical-mineral refining, processing, and even recycling, leaving our
203 Nation exposed to geopolitical supply-chain risks. And that is why domestic recycling of critical
204 minerals can also help boost national security.

205 We know it is possible to shore up our critical-materials supply chains without compromising
206 environmental and public-health protections. Democrats support the responsible and sustainable
207 build-out of our domestic critical-materials supply chains. It is important for our economy and
208 national security and necessary for the transition to cleaner and cheaper energy, particularly at a
209 time when the Trump administration and congressional Republicans have gone to war against clean
210 energy. It is time Republicans join us in supporting clean energy rather than continually targeting it.

211 And Democrats secured important downpayments in the Bipartisan Infrastructure Law and
212 the Inflation Reduction Act.

213 The Bipartisan Infrastructure Law included \$7.9 billion for battery materials processing,
214 manufacturing, and recycling. It also directed the EPA to develop battery-collection best practices,
215 voluntary battery labeling guidelines, and an extended producer responsibility framework for
216 batteries to help grow our circular economy for critical minerals.

217 The Inflation Reduction Act included tax credits for electric vehicles, critical minerals for
218 batteries, and battery manufacturing to expand our Nation's capacity and boost supply-chain
219 resiliency.

220 And while none of my Republican colleagues supported these historic laws, I am encouraged
221 by today's conversation to advance critical-mineral recycling and recovery. This slate of bills spans
222 the breadth of critical-minerals recovery, ranging from bipartisan ideas we can continue to work on
223 together to some highly partisan ideas that Republicans pushed under a previous Congress.

224 To that end, the wholesale industry deregulation in H.R. 3059 and the codification of
225 troubling Trump executive orders in H.R. 4370 are bills I simply cannot support. On the other hand,
226 H.R. 3713, the Legacy Mine Cleanup Act, which creates a dedicated EPA program for cleaning up
227 abandoned toxic mine sites, is a welcome bipartisan effort.

228 We will also consider three discussion drafts on battery recycling for critical minerals, a
229 strategy for recovering critical minerals from discarded materials, and authorizing a program for
230 reclaiming mining waste in search of critical minerals. And these discussion drafts are not perfect,
231 but I believe they are heading in a promising direction. And I look forward to continuing
232 conversations with the Republican majority to improve these discussion drafts so that we can secure
233 bipartisan agreements.

234 While critical-mineral recycling and recovery is essential to bolstering our domestic supply
235 chains, it is important that we do it responsibly and in a way that mitigates risks and protects the

236 environment, public health, and worker safety. And we have to recognize and build off of the
237 tremendous progress already underway at the State and local level.

238 So, with that, Mr. Chairman, I yield back the balance of my time. Thank you.

239 [The prepared statement of Mr. Pallone follows:]

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243 Mr. Palmer. The gentleman yields.

244 We have concluded with member opening statements. I would like to remind members

245 that, pursuant to the committee rules, all members' opening statements will be made part of the

246 record.

247 [The prepared statements follow:]

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251 Mr. Palmer. We want to thank our witnesses for being here today and taking time to testify
252 before the subcommittee.

253 The witnesses will have the opportunity to give an opening statement, followed by a round of
254 questions from members.

255 Our witnesses for today are: David Klanecky, president and CEO of Cirba Solutions; Greyson
256 Buckingham, co-founder, president, and CEO, DISA Technologies; Dr. Jessica Dunn, scientist, clean
257 transportation, Union of Concerned Scientists; and Aaron H. Goldberg, principal, Beveridge &
258 Diamond, P.C.

259 We appreciate you all being here today.

260 I now recognize Mr. Klanecky for 5 minutes to give an opening statement.

STATEMENTS OF DAVID KLANECKY, CHIEF EXECUTIVE OFFICER, CIRBA SOLUTIONS; GREYSON BUCKINGHAM, CO-FOUNDER, CHIEF EXECUTIVE OFFICER, AND PRESIDENT, DISA TECHNOLOGIES; JESSICA DUNN, PH.D., SCIENTIST, CLEAN TRANSPORTATION, UNION OF CONCERNED SCIENTISTS; AND AARON H. GOLDBERG, PRINCIPAL, BEVERIDGE & DIAMOND

STATEMENT OF DAVID KLANECKY

Mr. Klanecky. Chairman Palmer, Vice Chair Crenshaw, Ranking Member Tonko, and distinguished members of the committee, thank you very much for the opportunity to testify today.

My name is David Klanecky, president and CEO of Cirba Solutions, North America's premier battery recycling and materials management company. We were the first company in North America to process lithium-ion batteries at commercial scale, and, today, we recover over 90 percent of the critical minerals in these batteries that we process.

I am here today because the committee has an extraordinary opportunity to take decisive action that will strengthen America's national security, reduce our dangerous dependence on China for critical minerals, and position the United States to lead the global energy economy.

Let me offer a vivid perspective.

Access to critical minerals is essential for our Nation. The largest critical-mineral mines operating today in America are not in the ground; they are actually operating on our roads and data centers and energy storage systems and our homes right now. All of these batteries contain critical minerals that are recoverable.

There is a remarkable opportunity for the United States to take control of our own destiny, but, instead, we are allowing these materials to be sent to China.

Battery manufacturers are sourcing critical minerals from different parts of the world, like

Chile, Australia, and Argentina, to build those batteries in the United States, only to have these materials shipped back to China when those batteries reach end of life or become manufacturing scrap. Those critical minerals then become controlled by China, and, in essence, we are subsidizing China's critical-mineral supply chain.

China controls an estimated 70 to 90 percent of the global critical-mineral processing in the world, including materials that power our defense applications, energy for the grid, and much more. It is not just an economical vulnerability; it is a national security crisis.

Battery recycling and critical-mineral recovery offer one of the fastest and most cost-effective ways to reduce that path of dependency. And, at Cirba Solutions, we recover lithium, nickel, cobalt, and manganese from end-of-life batteries and gigafactory scrap and make sure that we return them directly to the production of a new battery, enabling a closed-loop battery supply chain which we all need.

One of the most pressing obstacles facing our industry today is the export of end-of-life batteries and gigafactory scrap out of the United States to overseas processors, primarily in China. Large volumes of lithium-ion batteries and gigafactory scrap are being shipped abroad rather than processing here at home, and our own regulatory framework is allowing that to happen.

The path of least resistance for these materials is to ship those materials abroad -- it is more economical -- to countries with far less stringent regulations and state-subsidized capacity like China.

China has deliberately structured its industrial policy to attract exactly that material flow. And there are United States companies today actively shipping these critical minerals, end-of-life batteries, and gigafactory scrap to China.

Meanwhile, domestic processors are operating under rigorous environmental standards like RCRA Part B, as well as stringent CapEx and OpEx disadvantages which result in increased cost to process these batteries. These are hurdles that foreign competitors are not burdened with.

Every battery that leaves America is a compounding loss -- not only just in the mineral value,

but the jobs, the processing infrastructure, and the manufacturing feedstock that could supply U.S.'s local battery production.

Enhanced material tracking, targeted incentives for domestic recycling, and a level regulatory playing field for domestic recyclers can reverse this dynamic, keeping critical-minerals jobs and processing capacity here in the United States.

The second barrier is how the Federal Government classifies black mass. Black mass is a concentrated intermediate material produced when lithium-ion batteries are shredded and processed at their end of life. It is rich in lithium, cobalt, nickel, and manganese, and to every buyer and seller in the marketplace, black mass is a very valuable product, actively purchased, traded, and sought by refiners and manufacturers worldwide.

Yet, under current U.S. regulations, it is classified as a solid waste. This creates a cascade of real-world consequences, such as imposing compliance costs that make U.S. recyclers less competitive.

When policy treats a product like a waste, it creates waste-like economics, instead of product economics that attract investment. We cannot afford to let this dynamic occur when we are trying to compete with China, who controls 80 percent of the black-mass shredding capacity in the world.

The BRACE Act must exclude black mass from the definition of solid waste and direct the EPA to implement universal waste standards specifically tailored for lithium-ion batteries that reflect the value of the critical minerals they contain.

The practical benefits are significant. Easier domestic and trans-boundary movement, more competitive pricing, and a lower cost mean all more capital available for infrastructure and domestic processing capacity. And this translates into a much stronger, competitive position against China. It also sends a clear and necessary market signal that battery-recycling intermediates such as black mass are a strategic product that we value.

Let me be clear: We are not asking for anything to be exempt from environmental

336 regulations or laws that are there. We simply want the regulation to reflect the nature and the
337 value of the products that we create and tailored enforcement across the industry.

338 The volume of lithium-ion batteries reaching end of life and gigafactory scrap being created
339 will grow dramatically over the next decade. The countries and companies that build a robust
340 recycling infrastructure today will now control the critical-mineral supply chains of tomorrow. The
341 ones that wait will find themselves dependent on whoever did invest. And China has been and is
342 investing aggressively at scale on recycling.

343 A diversified domestic supply chain, one that draws recycled materials alongside a responsibly
344 sourced primary material through mining, is the only long-term resilient path for international
345 competitiveness.

346 Cirba Solutions proves every day that domestic battery recycling and critical-mineral recovery
347 at scale can be done and done commercially profitable.

348 The critical minerals we need for our national security and economic competitiveness and for
349 our energy future are already here. As I mentioned, they are out on the streets and in our pockets.
350 Battery recycling is how we claim them for America.

351 Thank you very much. I welcome your questions.

352 [The prepared statement of Mr. Klanecky follows:]

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354 ***** COMMITTEE INSERT *****

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356 Mr. Palmer. The chair now recognizes Mr. Buckingham for your opening statement.

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358 **STATEMENT OF GREYSON BUCKINGHAM**

359
360 Mr. Buckingham. Chairman Palmer, Ranking Member Tonko, Chairman Guthrie, Ranking
361 Member Pallone, and distinguished members of this subcommittee, thank you for the opportunity to
362 testify today.

363 My name is Greyson Buckingham. I am the co-founder, president, and CEO of DISA
364 Technologies, a veteran-led critical-minerals and remediation company headquartered in Casper,
365 Wyoming.

366 DISA started with two Wyoming entrepreneurs and a conviction nearly everyone else had
367 written off. My business partner, John Lee, and I met at the University of Wyoming, two
368 Westerners raised with a deep appreciation for this land and the resources it holds and the belief
369 that we owe it to both to take care of them.

370 In 2018, we founded DISA on a simple conviction: that America can meet its own energy
371 and mineral needs and does not have to choose between cleaning up its land and putting it back to
372 work.

373 For the first 2 years, neither of us drew a salary. I served in the U.S. Army National Guard
374 throughout, with deployments to Kuwait and Iraq, and we took on a variety of jobs just to keep the
375 business afloat. We kept going because we believe in the mission.

376 Every ton of critical minerals and nuclear fuel we do not produce at home is a ton we buy
377 from foreign sources, including Russia and China. And changing that is national security.

378 Today, that conviction has earned DISA the backing of some of the most respected names in
379 energy and industry, including Constellation, the largest U.S. nuclear power producer; BHP, the

world's largest mining company; as well as Valor Equity Partners, Galvanize, Evok Innovations, Veriten, and Halliburton Labs.

We have raised more than \$80 million in private capital, employ over 75 people, and hold the first and only U.S. Nuclear Regulatory Commission license ever issued to remediate and recycle abandoned uranium mine waste.

Across the West, there are thousands of abandoned uranium mine sites -- not mill tailings, but the uranium-bearing waste rock in soil left behind by the Federal Government's own Cold War weapons programs -- most on Federal land, many on Tribal land, and nearly all without a responsible party to fund the cleanup. And for the past 40 to 75 years, these waste-rock piles have sat exposed on the surface, posing a hazard to public health and the environment.

On the Navajo Nation alone, there are 523 abandoned uranium mines. An estimated 85 percent of homes on the Navajo Nation have been contaminated with uranium, and generations of families have faced elevated risk for cancer and kidney disease.

For decades, the only options were to do nothing, cap the material in place, or haul millions of tons of radioactive material away to disposal cells -- each slow, costly, and leaving both the hazard and the resource behind.

We are joined here today by the Navajo Nation EPA executive director, Stephen Etsitty, and the Navajo Nation Washington Office deputy director, DeWayne Crank, partners we have been privileged to work with for the last several years.

Working with the Navajo Nation and other partners, DISA built a different option. Our technology, High-Pressure Slurry Ablation, is a mechanical process that uses water and particle-on-particle collisions to strip uranium, radium, and vanadium off the sand.

In EPA's own study on the Navajo Nation, it cut contamination by more than 90 percent, eliminated leachability, and shrank the waste needing disposal by up to 83 percent, at 60 to 70 percent less cost than hauling and disposing the material.

405 EPA and Idaho National Laboratory validated the technology, and the NRC licensed it just last
406 year after a 4-year-long process and a finding of no significant environmental impact.

407 Our crews are trained radiation workers held to the same rigor used at Superfund sites.
408 Protecting the people, land, and water is the foundation of what we do.

409 That same waste also holds the potential to recover hundreds of millions of pounds of
410 domestic uranium. So we can clean up a legacy hazard and, in the same step, recover a critical
411 mineral our country desperately needs for national security and energy production.

412 While the technology is ready, the regulatory framework has not kept pace. Federal law is
413 built to treat and dispose. It does not reward recovering minerals while cleaning up. The bills
414 before you begin to fix that. And we especially support the Legacy Mine Cleanup Act, the CHARM
415 Act, and the EMRTAI Act.

416 And we needn't start from scratch. EPA's Superfund Optimization Program already makes
417 cleanups more effective and cheaper, and it should examine and prioritize proven recovery
418 technologies like DISA's.

419 Four principles matter most: One, recognize and, where appropriate, credit the value of
420 recovered minerals in cleanup decisions; two, give a technology proven at one site a streamlined
421 path to the next; three, put one lead Federal agency in charge of coordinating permitting; and, four,
422 distinguish legitimate remediation, recovery, and recycling from new mining so a cleanup is not
423 treated like a new mine.

424 We are not asking you to choose between cleanup and recovery. With the right framework,
425 America can do both -- protect public health, restore the land, and strengthen our mineral supply, all
426 while saving taxpayers money.

427 Thank you, and I look forward to your questions.

428 [The prepared statement of Mr. Buckingham follows:]

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432 Mr. Palmer. The chair now recognizes Dr. Dunn for your statement.

433
434 **STATEMENT OF JESSICA DUNN, PH.D.**

435
436 Dr. Dunn. Chair Palmer, Ranking Member Tonko, and members of the subcommittee, thank
437 you for the opportunity to appear before you today to discuss how we can increase safe domestic
438 critical-mineral recovery.

439 My name is Jessica Dunn, and I am a scientist at UCS. I use environmental engineering
440 methods to assess the circularity of critical minerals and conduct research on electric vehicle battery
441 recycling policy.

442 My peer-reviewed research, along with the work of scientists at universities and National
443 Labs, have demonstrated that recycled materials could meet up to 50 percent of future demand for
444 lithium, cobalt, and nickel for electric vehicles in the U.S. by 2050.

445 For that reason, I appreciate the subcommittee's focus on this topic and agree that it is
446 important to assess how Federal policy can help us recover the maximum amount of minerals from
447 waste and support our domestic economy.

448 At the same time, it is important to ensure compliance with foundational environmental laws
449 that are necessary to protect people and the resources we rely on. I urge this committee to
450 consider approaches that build a robust recycling system while upholding critical environmental
451 protections.

452 My work is informed by years of in-depth discussion with industry, lawyers, and other
453 researchers. These conversations have made clear there are key areas where policy can improve
454 the system without lowering necessary health and safety standards. The CHARM Act takes a first
455 step at this by coordinating recovery plans across the agencies, but much more can be done.

The first issue is to address increasing battery collection and ensuring they can reach recycling facilities safely. The dispersed nature of battery retirements across the Nation leads to many instances where the cost of collection and recycling exceeds the revenue from recovery. This lowers battery collection and squeezes the recycling market.

In Colorado, this issue was addressed by a recently enacted law requiring the recycling and recovery of critical minerals from batteries in hybrids and electric vehicles. The Colorado legislation allows the collection and recycling market to continue operating but holds the producer responsible for batteries that would typically fall through the cracks.

The bill was supported by automakers and other affected stakeholders because they know they can create an efficient and lower-cost battery-collection network that will increase feedstock to recyclers and increase the critical-mineral supply for future manufacturing needs.

Additionally, we need to make sure minerals are actually recovered from these batteries when they reach a recycling facility. Currently, minerals are covered at rates below the technologically available level due to low and fluctuating mineral market prices and outdated technology. By setting minimum recovery rates, as done in the European Union and Colorado, more minerals will be recovered and added to U.S. production. This can also be achieved can by setting minimum thresholds for recycled content in new products.

Lastly, there is a lack of ability to determine the battery's health when it reaches retirement and is removed from a product. This is especially true for electric and hybrid vehicles. This prevents third parties from truly knowing if the battery is damaged or can be sent for repurposing. Requiring the sharing of this information would make shipping safer and the battery end of life more profitable and efficient.

Unfortunately, the deregulation approaches in the BRACE Act would make matters worse by introducing dangerous changes to the management of retired batteries. This draft legislation would undermine current laws covering transportation and storage. For example, excluding black mass

481 from being considered solid waste removes the environmental oversight necessary to control heavy
482 metals and other contaminants.

483 Exempting recyclers from the requirement to be fully permitted under RCRA to allow them to
484 store batteries for longer will remove important guardrails that mitigate risk. These guardrails
485 include fire and spill controls, storage and disposal standards, air emission standards, and public
486 notice requirements.

487 Enacting policies to increase critical-mineral recovery while also upholding key environmental
488 regulations is of national importance. These recovered minerals are a domestic replacement for
489 those that are newly mined and result in significantly less environmental impact.

490 There are valuable steps Congress could take to achieve these goals without the dangerous
491 backsliding in the BRACE Act that creates health and safety risks.

492 Thank you for the opportunity to testify, and I would be pleased to answer any questions you
493 may have.

494 [The prepared statement of Dr. Dunn follows:]

495
496 ***** COMMITTEE INSERT *****

497
498 Mr. Palmer. Mr. Goldberg, you are now recognized.

499
500 **STATEMENT OF AARON H. GOLDBERG**

501
502 Mr. Goldberg. Chairman Palmer, Ranking Member Tonko, and members of the
503 subcommittee, thank you for this opportunity to speak today.

504 My name is Aaron Goldberg. I am an environmental attorney with Beveridge & Diamond,
505 and I have been working on hazardous waste issues under the Resource Conservation and
506 Recovery Act since 1980.

507 I am here today in my personal capacity to highlight the need for legislation to promote
508 recovery of critical minerals from the lithium-ion batteries used in consumer electronics, electric
509 vehicles, and energy storage systems. The views I express today are my own.

510 To start, it is important to note that virtually all the relevant RCRA regulations were issued in
511 the 1980s and 1990s, before lithium-ion batteries were widely used. The rules contain numerous
512 provisions designed to facilitate recycling of other types of batteries, such as lead-acid and
513 nickel-cadmium; however, the rules are essentially silent on lithium-ion batteries. As a result, they
514 create obstacles that were never intended and that frustrate national goals.

515 The fundamental problem is that the RCRA rules generally classify lithium-ion batteries and
516 related materials as waste rather than the valuable resources that they are. That, in turn, results in
517 a cascade of other problems.

518 I will highlight three examples.

519 First, the rules compel battery recyclers to store the batteries offsite prior to processing.
520 That serves no environmental purpose. It merely adds cost, complicates logistics, and increases
521 transport and handling risks.

Second, the rules classify critical-mineral-rich black mass from shredding lithium-ion batteries as solid waste, even though lower-value shredded circuit boards are generally viewed as non-waste. That makes domestic recovery harder, and it puts the U.S. at a disadvantage to countries like China, which generally views black mass as a valuable commodity.

Third, the rules restrict land disposal of non-hazardous residues from recycling lithium-ion batteries, even though similar residues from recycling other batteries are not subject to the same type of restrictions. That imposes extra burdens without a corresponding environmental benefit.

EPA has announced its intent to revise some of the RCRA rules for lithium batteries, but the focus appears to be on more stringent standards to address fire risks, not any of the issues that I have mentioned. Fire risks are real, but they are already addressed through fire codes, DOT transportation rules, and other targeted requirements.

Moreover, EPA's authority to add new RCRA standards to address these risks is uncertain under the 1996 Rechargeable Battery Management Act. And even if EPA does act, a rulemaking would likely take years and would have to be followed by State adoption that could take several more years and might never be complete.

For these reasons, congressional action is important.

I appreciate the subcommittee's work on the draft BRACE Act. The bill is a useful start, but it needs important revisions.

First, it addresses only the rule that pushes recyclers to store batteries offsite, and it does so in a way that, paradoxically, could leave onsite storage less regulated than offsite storage.

Second, it does not address other barriers that I have discussed, including the regulation of black mass and non-hazardous recycling residues.

Third, it would give EPA broad authority to issue new standards without requiring the Agency to account for existing safety standards or the national goals for recovery of critical minerals.

There are simple, commonsense solutions. For example, recyclers could be allowed to store

batteries onsite as long as they comply with the same requirements they are currently subject to at their separate facilities. Black mass, like other partially reclaimed materials that are commodity-like, could be reclassified as non-waste. And non-hazardous residues from recycling lithium-ion batteries, like those from other types of batteries, could be deemed to be sufficiently treated to allow land disposal.

I urge Congress to enact these and related changes nationwide to help support the domestic supply chain for critical minerals while continuing to protect human health and the environment.

Thank you for considering my testimony. I am happy to answer any questions.

[The prepared statement of Mr. Goldberg follows:]

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558

559 Mr. Palmer. I thank you all for your testimony.

560 We will now move to the question-and-answer portion of the hearing.

561 And the chair now recognizes the gentleman from Ohio, Mr. Latta, for 5 minutes for his
562 questions.

563 Mr. Latta. Well, thank you very much, Mr. Chairman, for today's hearing.

564 And thanks to our witnesses for appearing today.

565 Mr. Buckingham, you noted in your written testimony there is a lack of incentives for recovery
566 of valuable materials during the remediation of contaminated sites.

567 And I have been to several contaminated sites, and usually what you see is: They come in;
568 they move all of the dirt out; it is, you know, taken to some other hazardous-waste area, and it might
569 be put into a pit or some kind of a lined area and forgotten forever, then, on that end.

570 But how should the EPA address and incentivize some kind of a process that we can go in and
571 make sure that we are recovering these really critical minerals that are in that soil?

572 Mr. Buckingham. Thank you, Representative, for the question.

573 The U.S. EPA, for the purposes of uranium, estimates there are about 15,000 sites associated
574 with abandoned uranium mine waste. Those sites have largely just been sitting on the surface for
575 decades and without any meaningful incentives to remediate those sites, because it is too costly.
576 You know, on average, the U.S. EPA estimates there are about 3 billion tons of overburdened
577 material that has been sitting on the surface.

578 And so, when the EPA approaches these different types of cleanups, and specifically on the
579 Navajo Nation, they have to formulate what is called an Engineering Evaluation/Cost Analysis Report,
580 and they list out the various options in how to address the cleanup of that material site. And,
581 almost always, option one, which sounds silly, is do nothing, because it is too expensive.

582 You know, the predominant option historically has been to bury the material on site, which

583 takes no benefit of the resource and keeps those contaminants at that site. And those caps, you
584 know, over time, do erode, and that material can still leach into the water and pose an
585 environmental hazard.

586 And so, you know, a technology like ours, where we can come in, we can treat that material,
587 we effectively recover over 90 percent of the uranium and vanadium into just 20 percent of the
588 original mass, so we upgrade it to where, you know, in some cases it is economic to take that
589 material and recycle it and put it to productive use, convert it into U308 and enter the nuclear fuel
590 cycle.

591 But when the U.S. EPA did the treatability study, based on the current regulatory framework,
592 you know, they just looked at us compared to hauling offsite -- which, we were still 60 to 70 percent
593 more economic -- and then capping that material in place, but there was no consideration given to
594 the value of those minerals.

595 And so the economics are a major driver in determining which options to pursue. And so, if
596 the U.S. EPA had that framework where they were able to value the minerals that could be
597 recovered, that could drastically change the economics in how they approach cleanup decisions.

598 Mr. Latta. Let me follow up on that. Because, again, one of the great things about serving
599 on this committee is, you know, we are looking out over this dais to so many innovators and
600 entrepreneurs that come in here with so many great ideas. And one that you brought up, again, is
601 on the regulatory side.

602 And so, if we could just put in the regulation -- you know, I think you touched on this. It is
603 on the economics issue. But what -- are they talking to the folks out there that are coming up with
604 a new process, a new idea, and saying, "Hey, we can do this"? Or is it just always kind of like, no, it
605 is much easier just to say that we are going to bury it?

606 Mr. Buckingham. Yes, and it has been a long journey of perseverance on our end, you know,
607 especially overcoming the, you know, valley of death. That is what they call, you know, a lot of

technologies when you are trying to commercialize that. And, you know, we are extremely grateful, and, you know, the EMRTAI Act, you know, strongly helps advance this, for example.

But we did our treatability site in the Navajo Nation in 2022. You know, they looked at how effective, economic, and could we use the technology in a wide variety of sites. And we answered "yes" to all of those questions.

But, you know, with the current regulatory framework, it just kind of gets put on a shelf. And, you know, fortunately with -- because there wasn't a funding mechanism to take it to the next step.

And, you know, fortunately, with the leadership of the Navajo Nation, you know, they said, "We want to see this verified at commercial scale. You did a great job on the pilot scale, but we want to see this commercially validated." But there weren't appropriate mechanisms, you know, within the EPA regulatory framework to do that.

So the Navajo Nation, using its own funds, is funding a Phase II verification study where we will be doing the first deployment of our technology for a cleanup this year on the Navajo Nation.

And so, you know -- but it does come down to economics, you know, to your point, Representative. And, you know, given that the current, you know, regulatory framework does not incentivize the value of recovered minerals, it is extremely difficult for new, innovative technologies to even come on board to validate, to reiterate the technology and prove that at commercial scale. And so, you know, with those incentives aligned, I do believe that it will encourage a much more significant amount of innovation to take place in this space.

And I love the title of this hearing, "From Trash to Treasure." I mean, that has been our slogan -- you know, converting liabilities into assets -- since we founded the company, and I do believe there are massive opportunities that are sitting in these waste piles.

Mr. Latta. Well, thank you very much.

And my time has expired, and, Mr. Chairman, I will submit my other questions to the

633 witnesses in writing. Thank you very much.

634 Thank you.

635 [The information follows:]

636

637 ***** COMMITTEE INSERT *****

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639 Mr. Palmer. The gentleman yields.

640 The chair now recognizes the ranking member, Mr. Tonko from New York, for 5 minutes for
641 his questions.

642 Mr. Tonko. Thank you, Mr. Chair.

643 I reiterate that I am open to examining potential barriers that are hindering the responsible
644 recovery of critical minerals. But I also believe we would benefit from an overarching end-of-life
645 management program to require the collection, assessing, and recycling of large-format batteries.

646 So, Dr. Dunn, what do you think we can take as a next step to really improve the circularity of
647 our critical-mineral supply chains? And are there State-Level policies that Congress can learn from?

648 Dr. Dunn. Thank you, Mr. Tonko. That is a great question. Yes, there are.

649 Extended producer responsibility, as I mentioned before, is a program that really requires the
650 recycling of these products by the producers, so ensuring that they make it to the recycling facility no
651 matter the cost.

652 In addition, ensuring that the minerals are actually recovered once they get to that facility is
653 essential for building up our domestic feedstock of critical minerals.

654 There are also additional measures that can be taken, such as recycled content standards, so
655 requiring the production of batteries using recovered materials and, therefore, kind of, building up
656 that end-of-life market.

657 In addition, there are labeling standards which really help increase the efficiency of the
658 end-of-life market by telling the recyclers actually what is in that battery and those minerals and that
659 worth.

660 These are all policies that were enacted in Colorado this year, and they are also policies in the
661 European Union since 2023.

662 Mr. Tonko. Thank you.

663 And why is this trend toward State-level extended producer responsibility, as a program, so
664 promising?

665 Dr. Dunn. This is extremely promising because it is answering a question that a lot of people
666 have: What are we going to do with these big batteries, and how can we get the minerals out of
667 them?

668 It is something that is supported by industry within the market, not only environmental
669 orgs -- so the dismantlers, the folks that are taking the batteries out of the cars and realize that they
670 need help -- along with the automakers, who recognize that it is in their best interest to recycle the
671 batteries because this will create a more resilient low impact in domestic supply.

672 Mr. Tonko. Okay.

673 If there are requirements that battery producers support the recycling of their products,
674 might that result in batteries becoming designed and manufactured to be more recyclable?

675 Dr. Dunn. Yes. That is an extremely good point. Holding the producer responsible for
676 recycling ensures that they are incorporating the cost of recycling -- so that means the disassembly,
677 the shredding, the black-mass processing -- into the design of their batteries.

678 This is important because the dismantling of the batteries is costly. All of the batteries, from
679 different cars to different manufacturers, are designed differently, and that means that they have to
680 take the batteries apart manually. This is an expensive and, you know, very risky situation. And if
681 it is designed to be disassembled and to be recycled, it will increase the efficiency and decrease the
682 cost.

683 Mr. Tonko. Thank you.

684 And, Mr. Klanecky, how might a national product stewardship program that requires
685 producers to be responsible for end-of-life management and ensures the safe recycling, repurposing,
686 or disposal of large-format batteries be beneficial to our shared goals of promoting critical-mineral
687 recovery?

688 Mr. Klanecky. Thank you, Representative Tonko. Appreciate the question.

689 Yeah, that is the overarching goal, right, is, we have these programs so we keep the critical
690 minerals in the United States. And the extended producer responsibility programs enable that.
691 They enable the collection of batteries. They enable that there is a certain supply chain that is set
692 up to ensure that those batteries, when they reach end of life, do get recovered.

693 And I think that helps recyclers, it helps the industry. It also creates a framework where we
694 know where these batteries are going to end up. They are not going to be ending up back in China,
695 for example.

696 So I think one of the important things is just working with the States -- every State is kind of
697 proposing different rules -- but working with the States to ensure there is some consistency in how
698 these rules are enforced, as well as the fact that the entire supply chain needs to be profitable when
699 they do these things, right?

700 And Ms. Dunn mentioned a few things about the economics, and I think that is important, as
701 well, with these programs, that they are set up to ensure that not one part of the supply chain
702 actually profits from everything and the other parts of the supply chain aren't able to build a business
703 beyond that.

704 But I think it definitely -- in the end of the day, it reaches the overarching goal, which is, keep
705 the minerals here in the United States.

706 Mr. Tonko. Well, thank you very much.

707 I have exhausted my time, but I have another question that I will get to the committee. But,
708 again, I thank the panel for their attendance today.

709 Thank you.

710 [The information follows:]

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712 ***** COMMITTEE INSERT *****

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714 Mr. Weber. [Presiding.] The gentleman yields back.

715 The chair now recognizes the chair of the full committee, Mr. Guthrie, for his 5 minutes.

716 The Chair. Thank you, Mr. Chairman, for the recognition.

717 I appreciate you all being here.

718 And so this is critically important, and it absolutely makes sense that we can take products

719 that are going to be discarded and reclaim them and put them back in the stream of commerce.

720 Instead of putting them in the Earth to be buried for some future generations to discover, we need to

721 use them now.

722 So I am going to ask Mr. Goldberg a series of questions, and then, Mr. Klanecky, after I get

723 through, if you will comment on some of the comments, I would appreciate it.

724 So, Mr. Goldberg, in your written testimony, you note that the current RCRA regulations make

725 domestic recovery of valuable materials from lithium-ion batteries more difficult and puts the U.S. at

726 a disadvantage to countries like China, where the black mass, the results from shredding lithium-ion

727 batteries, is treated as a valuable commodity.

728 So my question is, how does EPA go about deciding which materials should be considered

729 solid waste, and therefore potentially hazardous waste, and which should be exempted or excluded

730 from the definition of solid waste by its regulations?

731 Did you get all that?

732 Mr. Goldberg. I believe so. Thank you very much for the question.

733 The Chair. And, then, could increased coordination and communication between EPA and

734 Federal agencies help deal with this? That is -- so if you could kind of fill that in as well.

735 Okay.

736 Mr. Goldberg. Okay.

737 The Chair. There you go.

738 Mr. Goldberg. All right.

739 EPA's definition of solid waste is very complicated. It is based largely on the nature of the
740 material that is being processed, as well as the manner in which it is going to be managed -- in this
741 case, recycled.

742 And with black mass in particular, since you were asking about that, generally, if it is black
743 mass from a used product, it would be viewed as a spent material that is partially reclaimed -- this is
744 under EPA's regulations -- and, therefore, it would still be viewed as a waste by EPA. It would also,
745 then, potentially be hazardous, depending upon the composition of the black mass.

746 And --

747 The Chair. So communication between them -- EPA, if they communicated with other
748 agencies, would that be helpful in trying to get to the bottom line of this?

749 Mr. Goldberg. I think that might be helpful.

750 You mentioned, in particular, China. China takes the position that black mass is not a solid
751 waste if it meets certain standards. And that creates, as I indicated, a disadvantage to the U.S.,
752 because, you know, they are viewing it as a non-waste that they can take in freely, whereas in the
753 U.S. it would be --

754 The Chair. So how could a regulatory approach that treats black mass recovered from
755 lithium-ion batteries as a valuable commodity encourage the growth of domestic battery recycling?

756 Mr. Goldberg. If black mass is viewed as a non-waste, then it can move without all the
757 restrictions of the RCRA regulations. It can also then be processed without compliance with those
758 regulations.

759 They would still be subject to other regulatory regimes, like the Clean Air Act and Clean Water
760 Act, but the stringent hazardous-waste rules would not apply, you know, as would be the case, you
761 know, for other kinds of materials.

762 The Chair. So, Mr. Klanecky, if we treated the black mass recovered from lithium-ion

batteries as a valuable commodity, how does that encourage the growth? Or any other comments that --

Mr. Klanecky. Yeah.

The Chair. -- you would like to make on this subject?

Mr. Klanecky. Yeah, no, appreciate it. Thank you, Representative, for the question.

You know, I think when you look at black mass as a waste, I mentioned in my testimony, it -- you know, when you are classifying something as waste, it has waste economics, as well, that come along with it, and there are certain burdens and restrictions that carry that definition.

If you classify it as a product -- which, it is an intermediate product; it contains valuable critical minerals -- that attracts different investment. It is a material that can be used further downstream in the entire process of the supply chain.

So there are other industries that have intermediates that aren't called waste as well. When you are recycling plastics or other types of devices as well, they are not considered as a solid waste; they are considered as an intermediate product, which is what black mass is.

The Chair. Okay. Thanks.

I am going to switch a little bit to Mr. Buckingham.

So what type of contaminated sites are good candidates for recovery of critical minerals? And when EPA identifies a contaminated site for remediation, how does it coordinate with other Federal agencies?

Mr. Buckingham. Yes. Thank you, Chairman Guthrie.

We are primarily focused on abandoned uranium mine waste, where, you know, you will typically find large amounts of uranium and vanadium and radium located in those sites, but, in addition, the technology can also be used for tailings recovery. So we have strong partnerships with a group called ElementUSA, as well as Regeneration, that are focused on reprocessing tailings -- so looking at copper, gold, primarily, in those applications.

788 With respect to the abandoned uranium mine situation, there are a lot of agencies that we
789 have to deal with --

790 The Chair. I only have a few seconds. Is the process sufficient now, or do we need to
791 update the process between interagencies?

792 Mr. Buckingham. We would -- for Superfund sites and EPA-led, you know, I think the
793 Legacy Mine Cleanup Act is a very strong step in helping a lead agency, with the Office of Mountains,
794 Deserts, and Plains, streamline coordination.

795 The Chair. Thank you.

796 Well, my time has expired, and I will yield back what time I don't have.

797 Mr. Weber. Thank you for the time you don't have, Mr. Chairman.

798 The gentleman from New Jersey is recognized for 5 minutes.

799 Mr. Pallone. Thank you, Mr. Chairman.

800 I want to focus on the proposals we can work together on to ensure that we create a
801 sustainable, reliable, and domestic supply of critical minerals while at the same time maintaining
802 critical environmental standards.

803 So, along those lines, the BRACE Act tackles battery recycling and offers a critical opportunity
804 to reclaim critical minerals from discarded lithium-ion batteries.

805 And so, Dr. Dunn, my question -- I have two questions. This is the first one. They are both
806 to you.

807 Would you please briefly explain how we currently recycle critical-mineral resources found in
808 batteries despite them being considered solid waste?

809 Dr. Dunn. Yes. Thank you for the question.

810 Currently, batteries are first taken out of the product they are already in -- so, if it is an EV,
811 dismantled. From that EV, shipped to a recycler.

812 At that point, it is further broken down from the pack to the modular cell level. And then it

813 is shredded or crushed. That is a very harsh process. It is exactly what you think -- breaking that
814 battery up into tiny pieces. There are various -- you can do that in an inert environment; you can do
815 it in saltwater, essentially.

816 From there, the black mass is attempted to be separated from the rest of the battery. This
817 can be through sifting or magnets.

818 And then, at that point, that material is sometimes heated, not always. Then it goes to a
819 hydrometallurgy facility, where the constituent materials are removed.

820 Mr. Pallone. All right. I appreciate it.

821 And, of course, my view is that we don't need to exempt the so-called black mass from
822 solid-waste protections to recycled batteries, because, as you say, there are already examples of
823 recyclers managing this solid-waste designation appropriately while successfully moving forward with
824 recycling batteries. So I think it is clear that battery recyclers are already doing this work without
825 the need for that exemption.

826 But moving on to safety, my second question is: The EPA started a rulemaking process to
827 establish universal waste standards specifically tailored to lithium-ion batteries to address potential
828 fire risks. And EPA made this announcement in response to a 2021 report on lithium-ion battery
829 fires in the waste management process.

830 Yet some suggest that an updated standard to address fire and other safety risks associated
831 with lithium-ion batteries is not warranted. I think that we do need an updated standard.

832 So, Dr. Dunn, the BRACE Act also directs the EPA to revise its universal waste regulations to
833 establish standards for lithium-ion batteries. Could you please explain why it is essential for EPA's
834 rulemaking to reduce fire risk and improve other safety standards associated with the end-of-life
835 treatment of lithium-ion batteries, if you would?

836 Dr. Dunn. Yes. Thank you for the question.

837 I agree that it is essential to consider fire risk when we are handling these batteries. One

838 battery that has a thermal runaway -- so it heats up and creates a fire -- can -- you know, when these
839 are being shipped, there are a lot of batteries on the truck, and a fire in one will spread to the other
840 batteries. And that is a huge risk and something that can be mitigated and should be mitigated and
841 is essential to address in any kind of transportation standard.

842 Additionally, there is fire risk with black mass if there is lithium or battery fragments in that.

843 So ensuring that fire risk is included in the transporting, handling, storing of these batteries is
844 essential.

845 Mr. Pallone. Well, I appreciate it.

846 And, again, I think that these batteries -- or, lithium-ion batteries that are handled or
847 transported or disposed of improperly can pose significant safety risks. So that is why I think it is
848 vital for any updated universal waste standard to adequately address these risks, because battery
849 safety is integral to whatever safe and sustainable recycling of these critical minerals that we seek.

850 So thank you again.

851 And, Mr. Chairman, I yield back.

852 Mr. Weber. The gentleman yields back.

853 The chair now recognizes himself for 5 minutes.

854 Mr. Buckingham, I am going to come to you. Thanks for being here today, by the way.
855 Your testimony briefly touched on the geopolitical landscape and the favorable advantage China
856 currently has in the global production and refining of critical minerals.

857 While I am encouraged by the ongoing conversations and the efforts of the Department of
858 Energy and the EPA -- the Environmental Protection Agency, rather -- to reduce our reliance on
859 critical minerals from foreign countries, can you speak to how the Environmental Monitoring and
860 Remediation Technology Assessment Initiative -- or EMRTAI, so to speak -- program would allow us
861 to try to find new or non-traditional sources of critical minerals and drive technological innovation,
862 allowing us to further secure our domestic critical-minerals supply chain?

863

Can you speak to that?

864

865 RPTR MCGHEE

866 EDTR HOFSTAD

867 [11:17 a.m.]

868 Mr. Buckingham. Yes. Thank you, Representative.

869 I think EMRTAI is a great first step in incentivizing how to recover these critical minerals, you
870 know, and turn that trash into treasure. Idaho National Labs put out an amazing report a few
871 months ago discussing the untapped resource we have in all these different tailings facilities.

872 And, you know, speaking to our own personal experience, you know, the State of Wyoming
873 had an investment through the Wyoming Energy Authority for \$8.5 million that brought in
874 \$55 million in private capital within 6 months. So it is a signal to the private sector, as well, you
875 know, these types of policies, that this is a major focus of the U.S. Government and that there is
876 potential in recovering significant minerals.

877 You know, when we started the company in 2018, no one was using the word "critical
878 minerals." There weren't a lot of start-ups in our space. And just, you know, the focus that the
879 U.S. Government has put on recovering these critical minerals, there are a significant amount of new
880 entrants and capital flowing to this.

881 And I believe in the American spirit, and, through innovation, we can win this race. We are
882 far behind, but, you know, what this committee is doing, as well as other efforts, you know, is a very
883 strong step, and I think we are starting to see, you know, fast acceleration in this space.

884 Mr. Weber. So you saw an opportunity that was going to be good for the country, and you
885 jumped on it.

886 Mr. Buckingham. Yes, we did. You know, we are passionate about restoring lands and
887 recovering critical minerals. We have 75 employees. We have 30 job openings right now. And,
888 every single day, those employees come to work passionate about restoring our lands and recovering

889 critical minerals for national security.

890 Mr. Weber. Well, thank you for that.

891 Mr. Goldberg, I am going to come to you. Your testimony demonstrates the importance of
892 creating uniformity in regulating the collection and recycling of lithium-ion batteries. However, you
893 briefly touched on a potentially problematic proposed EPA rule that seeks to address the fire risk of
894 these batteries.

895 Can you describe what legitimate oversight the EPA has on addressing fire risks with respect
896 to the transportation and collection of those batteries?

897 Mr. Goldberg. Thank you for your question.

898 EPA has legitimate authority over fire risks. On the other hand, there are a large number of
899 other regulatory regimes that already address fire risks, and I question whether there is really a need
900 for further EPA action here.

901 There are currently fire codes that address these that are developed through the National Fire
902 Protection Association. There are DOT transportation rules and a number of other rules under
903 other programs as well.

904 I also have some concern that EPA rules here may not be desirable for certain reasons. For
905 example, if you have a facility that is taking in batteries, both lithium-ion batteries and other types of
906 batteries, are they now going to have to comply with two separate standards?

907 Also, there is development of solid-state lithium-ion batteries that do not pose fire risks. So,
908 if we have rules that are specific to lithium-ion batteries in general, are the solid-state batteries that
909 don't pose fire risks -- are those also going to be subject to the same standards?

910 So I think there are a lot of issues that I think that, if EPA were to do anything in this area,
911 they need to, you know, make sure that they are taking into account the existing rules that apply to
912 fire risks; they ought to take into account new developments of new battery chemistries; and they
913 also take into account the national goals of recovering the critical minerals from lithium-ion batteries.

914 Mr. Weber. Well, you are reading my mind. My next question was going to be, you know,
915 how would that proposed rule mess up the entire facility, and how would we work through that? I
916 think you just outlined that.

917 Thank you for your answer. I appreciate it.

918 The chair is going to now recognize the gentleman from Massachusetts for 5 minutes.

919 Mr. Ruiz. California.

920 Mr. Weber. Oh. Is it the doctor from California? I thought you were from
921 Massachusetts, Doctor.

922 The gentleman is recognized.

923 Mr. Ruiz. You should know better. You know that. You know that.

924 Thank you, Mr. Chairman.

925 As a physician who has cared for patients across the Coachella Valley for decades, I have seen
926 firsthand how environmental conditions affect the health and quality of life of the communities that I
927 serve and why economic opportunity and public health must go hand-in-hand.

928 My district is home to "Lithium Valley" and located in the Salton Sea region that sits atop one
929 of the largest known lithium deposits in the world. I can see many of you have heard of it already.

930 I have said many times in this room, including at our last hearing on critical-mineral supply
931 chains, that we have an extraordinary opportunity right under our feet. The brine beneath the
932 Salton Sea region could help strengthen our national security, anchor a domestic battery supply
933 chain, and create good-paying jobs in a region that has waited generations for economic investment
934 and opportunities.

935 But I have also said every single time that this opportunity cannot come at the expense of the
936 people who already live there. My district has some of the worst air quality in the whole country.
937 Communities surrounding the Salton Sea continue to face significant public-health challenges,
938 including elevated rates of asthma and respiratory illnesses. Children in North Shore, for example,

939 and across Imperial County are seeing emergency-room visits for asthma and nosebleeds at rates
940 that should alarm all of us.

941 That is why, when we talk about unleashing domestic critical-mineral production, I want us to
942 be honest that energy security and environmental and public-health protections are not competing
943 goals. In fact, I would argue they are inseparable. If we fail to protect the health of the
944 communities hosting these projects, then we have not truly achieved energy security. We have
945 simply shifted the costs onto the people least equipped to bear them.

946 Dr. Dunn, would you agree that critical-mineral development projects should leave host
947 communities better off than they were before the projects arrived?

948 Dr. Dunn. Yes, sir, I agree. We need to consider both the public impacts to health and our
949 environment as well as the recovery of these minerals.

950 Mr. Ruiz. Do you also agree that they are not competing interests, that we can actually
951 create a win-win solution where we have energy development, renewable critical-mineral
952 development, while at the same time protecting and advancing the public's health?

953 Dr. Dunn. I do. There are routes of complying with the regulation and protecting the
954 environment and also boosting the recycling system in the U.S.

955 Mr. Ruiz. Thank you.

956 And how can Congress ensure that efforts to streamline development do not come at the
957 expense of transparency, accountability, or public-health protections?

958 Dr. Dunn. Upholding these bedrock environmental policies and regulations that we already
959 have is critical.

960 Mr. Ruiz. So no fast-tracking NEPA or, in California, CEQA or taking shortcuts that allow for
961 some of the contaminations to occur. Okay.

962 Dr. Dunn. No, sir. Yeah.

963 Mr. Ruiz. And would you agree that one of the greatest opportunities for domestic

964 critical-mineral development is demonstrating that economic growth and environmental stewardship
965 can coexist?

966 Dr. Dunn. Yes. And I think the policies that we have enacted in Colorado recently, with
967 EPR and recovery rates, show that we can do both hand-in-hand while complying with regulations.

968 Mr. Ruiz. Okay.

969 I mean, I want to make it very clear that we need our critical minerals and we need to have a
970 domestic supply chain of critical minerals. I am a big proponent of making sure that the "Lithium
971 Valley" gives America the boost it needs for our national security, to lower costs on technology, to
972 create and manufacture the batteries that we need. We absolutely need it, and the people in my
973 district need the job opportunities. And we can do both; we can invest in a community, we can
974 protect our public health, and we can create a full regional supply chain -- manufacturing and
975 recycling.

976 You mentioned recycling, Dr. Dunn, as a way to be good environmental stewards. I agree
977 with that. We don't have a robust battery manufacturing industry in our Nation. But, oftentimes
978 in history, the batteries are discarded near poor communities. We have environmental injustices
979 happening like that, where companies will take advantage of marginal, poor communities. That has
980 happened in our Nation and in my district multiple times.

981 Tell me how that is a priority in our public-health efforts to avoid that from happening again.

982 Dr. Dunn. Yes, it is essential that the recycling of these batteries doesn't lead to increased
983 public harms. And that is something we have seen in environmental justice committees, specifically
984 in California, with lead-acid batteries.

985 Mr. Ruiz. Thank you.

986 I yield back my time.

987 Mr. Palmer. [Presiding.] The gentleman yields.

988 The chair now recognizes the gentleman from Pennsylvania, Dr. Joyce, for 5 minutes for his

989 questions.

990 Mr. Joyce. Thank you, Chairman Palmer, and thank you for holding this important hearing,
991 and for our panel for being with us this morning to testify.

992 The legislation under consideration today represents another step forward in this
993 committee's ongoing efforts to improve America's domestic critical-mineral supply chain. While we
994 work to onshore and scale up domestic mining and processing of these materials, legislation like this
995 will help in our efforts to recover the materials that would otherwise be discarded.

996 With the equipment used for advanced manufacturing and precision agriculture, both very
997 important in Pennsylvania's 13th Congressional District, we will continue to see more waste
998 generated that contains valuable critical materials. We need to develop both a strategy and the
999 capacity to recover these materials, rather than sending the waste for processing to China, who
1000 continues to dominate the supply chain.

1001 This is an economic and a national security imperative. We cannot afford to allow China to
1002 dictate the future of the global economy. These bills will improve our ability to recover our own
1003 critical materials and to help America get back in control of these essential supply chains.

1004 Mr. Buckingham, how will treating certain supply waste as an opportunity for recovering
1005 value, rather than simple material to be remediated and disposed of, how will that help to
1006 strengthen our critical-mineral supply?

1007 Mr. Buckingham. Thank you, Representative, for the question.

1008 I think, you know -- and that is what guides us here at DISA. I think we can make a
1009 tremendous impact in strengthening our critical-mineral supply chains by recovering minerals from
1010 these waste streams. And that is what guides us.

1011 You know, looking at uranium, for example, we import 97 percent of our uranium. We have
1012 an abundant and untapped resource sitting in these legacy sites that we can put to productive use.

1013 And Idaho National Labs put out a great report several months ago on this very topic. And,

1014 you know, when we look to bring on new mines, for example, that could take 10 to 15 years, while in
1015 these tailings and waste piles it is already there. You don't need to mine it; you can quickly go and
1016 treat that material in a safe and sustainable manner and bring on line, you know, a tremendous
1017 amount of critical minerals --

1018 Mr. Joyce. In followup, Mr. Buckingham, would you agree that directing EPA to develop a
1019 national critical-mineral recovery strategy and coordinate Federal efforts, as outlined in the CHARM
1020 Act draft, will help identify regulations that might need to be revised in order to allow and incentivize
1021 critical-mineral recovery?

1022 Mr. Buckingham. Yes, Representative. I think that is imperative.

1023 Mr. Joyce. Thank you.

1024 Mr. Klanecky, in your testimony, you mentioned that the path of least resistance is to send
1025 waste abroad for processing rather than to attempt to navigate the regulatory framework right here
1026 in the United States.

1027 How does this reality impact domestic processors?

1028 Mr. Klanecky. Yeah, I mean, that is why I mentioned some of the regulations create
1029 challenges for local producers, domestic producers, because the foreign producers don't have those
1030 rules. They don't have RCRA regulations; they don't have --

1031 Mr. Joyce. So it is not a level playing field is what you're telling us.

1032 Mr. Klanecky. Exactly. One hundred percent.

1033 Mr. Joyce. How will the BRACE Act improve your ability to receive, to store, and process
1034 lithium-ion batteries? And how will that, in turn, incentivize keeping the recovered critical minerals
1035 within our domestic supply chain?

1036 Mr. Klanecky. It will provide clarity on what those rules and regulations are and then
1037 provide enforcement of those rules.

1038 I think that is the biggest thing, is to level the playing field and ensure that the regulations

1039 that we all, kind of, operate under today -- we have a RCRA Part B permit on our site, and we operate
1040 under that permit, but everybody else doesn't. And this will help people enforce the rules that
1041 are --

1042 Mr. Joyce. Will that clarity allow you to increase production, which you and I know is so
1043 important?

1044 Mr. Klanecky. Absolutely. Absolutely. That clarity allows us to get investment to be able
1045 to do that.

1046 Mr. Joyce. The legislation that is under consideration today represents how seriously this
1047 committee is working toward the goal of a more robust domestic critical-materials supply. And for
1048 both the state of our economic and our national security, as I stated earlier, I look forward to
1049 continuing to work with this committee to move these bills forward.

1050 Thank you, Mr. Chairman, and I yield the remaining time back to the committee. Thank you.

1051 Mr. Palmer. The gentleman yields.

1052 The chair now recognizes the gentleman from California, Mr. Peters, for 5 minutes for his
1053 questions.

1054 Mr. Peters. Thank you, Mr. Chairman.

1055 Thanks to the witnesses.

1056 We do need to shore up our critical-mineral supply chains. America faces mounting
1057 pressure to modernize our grid to compete with China in AI, biotech, and manufacturing, and barriers
1058 like our outdated permit system, uncertain tariff policies, and stagnating scientific research are
1059 holding us back.

1060 First, we need to pass meaningful permit reform to make it easier and faster to source raw
1061 materials and recycled inputs.

1062 I also want to mention to the chairman -- this has been a concern of Chairman Palmer's. He
1063 has proposed some Clean Air amendments for permitting reform. As I promised him, we have

1064 spoken to the industry. I think we have language that the industry would be satisfied with and that
1065 Democrats could support. Chairman Guthrie also urged me to do that, and I look forward to
1066 continuing to work on that. I didn't want to let that go by, since we are here talking about critical
1067 minerals.

1068 Second, we need to be more thoughtful with our tariff policy. We can shore up domestic
1069 supply chains, but the U.S. doesn't have access to all the minerals we need. And, in those cases, we
1070 should be smart about working with our global allies, rather than imposing broad, sweeping tariffs
1071 that ultimately raise prices for consumers and create bad blood.

1072 Third, we should be fostering innovation. Where permitting reform and friend-shoring still
1073 leaves gaps in our supply chain, we need to turn to novel solutions to fill the void. And recent
1074 innovations should change how we view critical-mineral supply chains. And, as we have heard this
1075 morning, there are companies that can pull critical minerals from the tailing piles and ponds left
1076 behind at former industrial and mine sites and turn wasted, sometimes hazardous materials into
1077 viable products. We should be proactive, and we should incentivize the development of
1078 innovations like these.

1079 Meanwhile, we are still debating funding cuts that would make it harder to develop the
1080 solutions we have been discussing. This week, we will consider the Energy and Water
1081 Appropriations bill for the 2027 fiscal year. The bill proposes a 40-percent cut to the Department of
1082 Energy's Office of Critical Minerals and Energy Innovation program. That goes beyond all the cuts
1083 we have seen at the National Science Foundation. This basic scientific research is fundamental to
1084 developing innovative solutions to problems like the supply-chain issues we currently face.

1085 Mr. Buckingham, your company is the first of its kind to get a license to remove and recover
1086 uranium and other critical minerals from mining waste. Can you talk about how investments in
1087 technological innovations like yours could help us get the edge in our fight for critical-minerals
1088 access?

1089 Mr. Buckingham. Yes. Thank you for the question, Representative.

1090 And, you know, it was, you know, quite the journey with the NRC, because we were being
1091 regulated under the 1954 Atomic Energy Act, and they didn't foresee a technology coming like ours.
1092 And so, you know, that took a lot of education. Senator Lummis and Senator Kelly were paramount
1093 in helping the advocacy for, you know, the Commission addressing this issue, which ultimately
1094 resulted in a unanimous vote from the Nuclear Regulatory Commission.

1095 And so, you know, once we received that license officially in September of last year, we were
1096 excited to get to work. But, you know, when you look at these abandoned uranium mine sites, 75
1097 percent are on Federal and public land. And so, you know, the regulatory framework hasn't caught
1098 up with innovations like ours.

1099 And so, you know, for example, we have submitted license applications to remediate a site in
1100 western Colorado. Well, we had to go do our pre-mobilization notification with the NRC, which is a
1101 90-day process. Then we have to do a plan of operations with the BLM, since, because we are
1102 recovering the critical minerals, it triggers the 1872 mining laws, so we are effectively being treated
1103 as a new mine. And then we also have to work with the State DRMS in Colorado for a mine
1104 reclamation permit. And so there is a lot of redundancy.

1105 And in our NRC, you know, environmental assessment that was conducted, there was a
1106 finding of no significant impact. In fact, the NRC said we only make the environment better. But
1107 we are still having to, you know -- and the staff have been amazing to work with in these separate
1108 agencies, but the framework doesn't allow that.

1109 But, even after getting our NRC license, you know, that was a huge -- you know, we saw a lot
1110 of private investment that we were able to attract, because, you know, we were showing the ability
1111 that we are able to economically and sustainably recover these critical minerals.

1112 Mr. Peters. In the bills we are, sort of, talking about today, are there particular provisions
1113 that you especially care about us passing?

1114 Mr. Buckingham. The CHARM Act, the Legacy Mine Cleanup Act, and EMRTAI,
1115 Representative, are the bills that we strongly support and that we believe, you know, for our
1116 particular purposes, will help unlock additional innovation and private-sector investment in this
1117 space.

1118 Mr. Peters. Is there anything you want to tell us is undone if we pass these bills?

1119 Mr. Buckingham. I think they are all very strong steps. I think hearings like this are a great
1120 discussion to -- you know, there is much more to be done, but we believe they are very strong steps
1121 in the right direction.

1122 Mr. Peters. Great. I think we all want to develop policies that will encourage that kind of
1123 thing, and I hope we can. And it seems like a very constructive step forward.

1124 Thank you, Mr. Chairman. I yield back.

1125 Mr. Palmer. The gentleman yields.

1126 The chair now recognizes the gentlelady from Iowa, Dr. Miller-Meeks, for 5 minutes for her
1127 questions.

1128 Mrs. Miller-Meeks. Thank you so much, Chair Palmer and Ranking Member Tonko, for
1129 holding this important legislative hearing.

1130 Today's hearing is about something deceptively simple. We have the material, we have the
1131 technology, we have the need, and yet we are still shipping critical minerals overseas to be processed
1132 and sold back to us.

1133 The United States built a recycling system around one question: How do we safely dispose
1134 of this? That was the right question for its time. It is the wrong question for this moment.

1135 The materials flowing through our waste streams today are the same materials our defense
1136 sector, our grid, and our manufacturing base depend on. This is a question of energy security and
1137 industrial competitiveness.

1138 The market is already trying to solve this problem. Commercial actors are structuring

1139 contracts to recover and reuse these materials domestically. I passed a bill that allows the Ames
1140 Lab to be able to do that with hard drives from the DOD. Companies are investing in new
1141 technologies to unlock value from existing waste streams and building the processing facilities we
1142 need to keep that value here at home.

1143 But our permitting system was designed for a different era, one where speed and efficiency
1144 were not strategic imperatives. Every month of delay is a month China is pulling further ahead.

1145 Mr. Goldberg, we currently have a regulatory system designed, as I said, around this system
1146 of, how do we safely dispose of this? The market is increasingly asking, how do we recover value
1147 from this?

1148 As an expert on RCRA, how much of what we are struggling with today is simply that we have
1149 never updated the underlying assumption?

1150 Mr. Goldberg. Thank you for your question.

1151 I think that a large part of the problem here is that the rules were developed back in the
1152 1980s and 1990s, before lithium-ion batteries really existed. And, as a result of that, the existing
1153 regulations -- and mind you, for other types of batteries, there are many different provisions that are
1154 specific to other kinds of batteries --

1155 Mrs. Miller-Meeks. Yes.

1156 Mr. Goldberg. -- so as to facilitate processing of those. But lithium-ion batteries didn't
1157 exist back when the rules were written, and they definitely need updating.

1158 Mrs. Miller-Meeks. Thank you.

1159 Mr. Buckingham, the United States has some of the most advanced materials-processing
1160 research in the world. In Iowa, the Ames National Laboratory has done groundbreaking work on
1161 critical-mineral separation and processing. But there is a persistent and frustrating gap between
1162 what we can demonstrate at the bench scale and what actually gets built at commercial scale here at
1163 home.

1164 What is sitting in that gap? Is it capital? Is it our regulatory system? Or is it something
1165 more fundamental about how we translate American innovation into American industrial
1166 competitiveness?

1167 Mr. Buckingham. Thank you, Representative.

1168 And the response is, all of the above.

1169 The biggest enemy for an entrepreneur and innovator is time. And if you have to go through
1170 significantly redundant permitting hurdles, that time kills you.

1171 And then capital. Typically, when these venture funds are backing new innovations, you
1172 have 2 years of runway to get to the next milestone. And so, if you are being slowed down by
1173 different permits, it is going to be very hard to attract that capital and overcome that valley of death.

1174 Mrs. Miller-Meeks. Would you say, given your answer to the last question from
1175 Representative Peters about the numbers of agencies that you had to go through, having them done
1176 concurrently rather than sequentially would certainly reduce that time and also reduce the amount
1177 of capital?

1178 Mr. Buckingham. Streamlining would be huge. When we go clean up a site, you know, we
1179 are dealing with at least three different agencies, and it is pretty much the same information for each
1180 one.

1181 Mrs. Miller-Meeks. Thank you.

1182 Mr. Goldberg, aluminum is one of the only materials designated as critical across every
1183 Federal agency, and recycled aluminum already makes up roughly 85 percent of U.S. production.
1184 But recovery rates for aluminum packaging remain well below their potential, representing an
1185 estimated \$1 billion to \$2 billion annual loss to the economy.

1186 Part of that is collection, which my Recycling Infrastructure and Accessibility Act aims to
1187 address. But part of it is that our material sorting technology has fallen far behind China and
1188 Europe. The material we do collect ends up being shipped overseas for processing.

1189 How might the CHARM Act and similar efforts incentivize the sorting and processing
1190 technology upgrades we need to actually capture the value of what we are collecting?

1191 Mr. Goldberg. Thank you again for your question.

1192 I personally don't work a lot on aluminum issues, but, at the same time, I think that the
1193 CHARM Act, in general, provides a great framework for coordination of agencies to address the
1194 recovery of all types of critical minerals from materials that are currently viewed as waste.

1195 Mrs. Miller-Meeks. Thank you very much.

1196 I have two questions I will submit for the record.

1197 And, with that, I yield back.

1198 [The information follows:]

1199

1200 ***** COMMITTEE INSERT *****

1201

1202 Mr. Palmer. The gentlelady yields.

1203 The chair now recognizes the gentlelady from California, Ms. Barragan, for 5 minutes for her
1204 questions.

1205 Ms. Barragan. Thank you, Mr. Chairman.

1206 Critical minerals are essential to our economy, our energy system, and many of the products
1207 Americans use every day. As we look for ways to strengthen domestic supply chains and recover
1208 more of these materials here at home, we also have a responsibility to ensure that recycling and
1209 recovery efforts are done safely and deliver real benefits to workers and communities. So I look
1210 forward to hearing from the witnesses how we can advance both of these goals.

1211 Mr. Buckingham, I want to start with you.

1212 Some of the bills before us, particularly the Legacy Mine Cleanup Act and EMRTAI, would
1213 support recovering critical minerals from contaminated sites and mining waste. What safeguards or
1214 accountability measures should Congress consider to ensure that these projects also deliver
1215 meaningful cleanup benefits to communities?

1216 Mr. Buckingham. Thank you, Representative, for the question.

1217 You know, I would add, for those bills, none of those bills change the cleanup standards or the
1218 safety precautions that must be taken for us when we approach these abandoned uranium mine
1219 sites.

1220 We have radiation safety officers, assistant radiation safety officers. There is a significant
1221 amount of sampling and containment that goes into this, and we use, you know, the most rigorous
1222 standards, both at our NRC-licensed sites as well as our Superfund sites, to ensure that we are
1223 meeting those safety standards as well as those cleanup standards in those activities.

1224 Ms. Barragan. Great.

1225 Mr. Klanecky, the average person buying a car, a phone, or a computer, why should they care

1226 about battery recycling?

1227 Mr. Klanecky. Well, they have a lot of value in the batteries that they carry. There is a lot
1228 of critical minerals that are important for the production of a new battery, and if we can recover
1229 those things -- in the end of the day, if you create a closed-loop supply chain for these minerals, it will
1230 lower the cost of those devices, right?

1231 If we don't have to source things from Australia or from maybe China or Africa, other places
1232 like that, it is going to lower the cost to the consumer for these devices, whether it is a vehicle, a
1233 phone, whatever it might be.

1234 Ms. Barragan. So, if a consumer has a phone and they do the recycling properly, prices
1235 down the line will go lower for them.

1236 Mr. Klanecky. Absolutely.

1237 Ms. Barragan. And if they don't, they are going to continue to go up.

1238 Mr. Klanecky. They are going to continue to go up, because we are going to depend on
1239 foreign sources for those materials to make those batteries.

1240 Ms. Barragan. Great. Thank you.

1241 Mr. Dunn, the BRACE Act is intended to make it easier to collect, store, and recycle lithium-ion
1242 batteries. As Congress considers expanding -- I am sorry. Dr. Dunn. I think I mis-said that.

1243 As Congress considers expanding battery recycling, are there environmental, safety, or
1244 transparency measures that should accompany that growth to protect workers and nearby
1245 communities?

1246 Dr. Dunn. Yes. Thank you for the question.

1247 We must uphold these bedrock policies that we already have, because there is a risk to
1248 human health from the transportation and the processing. But there are other additional measures
1249 that can be taken to ensure that we actually recover the minerals -- specifically, recovery-rates
1250 requirements for lithium, nickel, and cobalt. We can prioritize recovery within the United States to

1251 boost up those recycling facilities.

1252 And, in addition, we can continue doing research on the emissions from the facilities and look
1253 at contaminants, such as PFAS, that could contaminate surrounding communities.

1254 Ms. Barragan. Great. Thank you.

1255 Mr. Klanecky, industry surveys have found shortages of skilled workers across the batteries
1256 supply chain, particularly technicians and manufacturing workers. DOE and the Department of
1257 Labor have worked to develop battery workforce standards and apprenticeship pathways, but much
1258 of that effort has focused on manufacturing.

1259 Are there unique workforce needs in battery recycling and materials recovery that aren't
1260 receiving enough attention? And what can Congress do to support them?

1261 Mr. Klanecky. Thank you, Representative. That is a great question.

1262 I think it is an industry problem in whole, whether it is battery production itself or battery
1263 recycling, that the technicians required -- just the people to build plants, right? We have to build
1264 assets to be able to recycle and recover these critical minerals, and having electricians, pipefitters,
1265 people like that that actually can do those trades, as well, is a real shortage in the United States.

1266 We are working, obviously, with the Federal Government on different training programs for
1267 battery recycling facilities. A lot of these facilities are chemical processing plants, as was mentioned
1268 earlier, hydrometallurgical processing. So we are competing with the chemical industry, in some
1269 respects, for those operators and that talent.

1270 But I think having programs that are really specifically focused on the training of operators for
1271 these facilities is absolutely critical going forward.

1272 And it starts -- it starts in grade school. It doesn't start in college. We need to start back in
1273 the grade school, high schools, and be able to attract and teach people what battery recycling is and
1274 the value of their job.

1275 Ms. Barragan. Well, I would love to see that lesson for grade school on this.

1276 So thank you so much for your testimony and the other witnesses'.

1277 I yield back.

1278 Mr. Klanecky. Thank you.

1279 Mr. Palmer. The gentlelady yields.

1280 The chair now recognizes the gentleman from New York, Mr. Langworthy, for 5 minutes for
1281 his questions.

1282 Mr. Langworthy. Thank you very much, Mr. Chairman.

1283 New York may not have the large critical-mineral mines found in other parts of the country,
1284 but our manufacturers in advanced technology companies depend on these materials to make the
1285 products that power our economy and support our national security.

1286 And as demand for these materials continues to grow, it is important that we take an
1287 all-of-the-above approach to strengthening domestic supply chains through mining and recycling,
1288 recovery, processing, and refining here in the United States.

1289 You know, several of the bills before us look beyond traditional mining and focus on
1290 recovering critical minerals from existing waste streams in legacy sites. And that is particularly
1291 relevant for western New York and the Southern Tier, where a long history of manufacturing and
1292 industrial activity has left behind sites that may represent opportunities for cleanup and
1293 redevelopment and recovery of valuable materials. And, if done responsibly, these efforts could
1294 help strengthen our domestic supply chains and create new economic opportunities for communities
1295 that I represent.

1296 Mr. Klanecky, if these waste streams in legacy sites contain materials that could help
1297 strengthen domestic supply chains, what are the biggest barriers preventing that recovery today?

1298 Mr. Klanecky. I think a couple things, Representative. Thank you for the question.

1299 I think, when you look at the supply chain that we have, the assets that we have, again,
1300 designing them to be able to do recovery of waste streams is something that is critical. There is a

1301 lot of technology out there that has been talked about today about recovering things like uranium.

1302 Same with nickel, cobalt, lithium; there are technologies out there to do that.

1303 I think one of the biggest hurdles is, again, the permitting process and ensuring that that is a
1304 very defined process -- timelines are defined, the objectives are defined.

1305 Once that is done, having the ability to have capital to do that. The government has done a
1306 tremendous job over the last 5 years in providing some grants, loans, things like that, support for the
1307 industry. I think that needs to continue.

1308 If you step back and look at what China has done over the last 15 years, they have invested
1309 trillions -- not billions, but trillions -- of dollars in the battery industry to build not only batteries but
1310 also the recycling infrastructure to be able to recover those critical minerals.

1311 Mr. Langworthy. Yeah. And every pound of material we get in recovery here at home is 1
1312 less pound that we have to source overseas. And I think that is something that we have to be
1313 laser-focused on. As we work to strengthen that domestic supply chain, we need to be looking at
1314 every opportunity to reduce our dependence on those foreign sources.

1315 Staying with you, sir, China dominates significant portions of the global critical-minerals
1316 supply chain. If China were to significantly restrict exports of critical minerals or critical-mineral
1317 processing capacity tomorrow, what would be the most immediate impact on the American
1318 economy?

1319 Mr. Klanecky. Oh, it would be a large impact, Representative. We import over 60 percent
1320 of the batteries today that we need in our country -- 60, 6-0. So that is a large number of batteries
1321 that are coming from other countries, including China.

1322 So it would significantly impact the defense industry. It would impact the automotive
1323 industry. It would impact our grid industry on how we store energy, as well as the big thing now,
1324 which is data centers. Data centers need batteries to continue to run. So it would have a
1325 tremendous impact on our entire economy.

1326 Mr. Langworthy. That is deep trouble.

1327 How prepared is the United States today to respond to that kind of supply-chain crisis?

1328 Mr. Klanecky. Yeah, I think the U.S. is working hard. Obviously, the administration today is
1329 very focused on, you know, unleashing opportunities for companies to develop the critical-minerals
1330 supply chain.

1331 I think we have a long ways to go. Again, China has had a 15-year-plus head start on us for
1332 this, but I think you have a lot of entrepreneurs, you have a lot of companies, you have a lot of
1333 investment that is ready to be deployed to help build this infrastructure out, and we need to
1334 continue to support that.

1335 Mr. Langworthy. Well, thank you very much.

1336 Many of the opportunities discussed in these bills involve areas where EPA already has
1337 expertise, including environmental cleanup and remediation and waste management.

1338 Mr. Goldberg, what role could EPA play in helping to identify and recover critical minerals
1339 from waste streams, legacy sites, and contaminated land? And how could the EPA work with other
1340 Federal agencies to support these efforts?

1341 Mr. Goldberg. Thank you for your question.

1342 The EPA reg- -- the RCRA regulations already contain a number of provisions that are designed
1343 specifically for recovery of materials from -- of other types of materials from a variety of waste
1344 materials. And they have the opportunity here to do a similar kind of thing with respect to recovery
1345 of critical minerals from waste and secondary materials.

1346 Mr. Langworthy. Well, thank you very much.

1347 I mean, these issues are more than just about critical minerals. They are about supporting
1348 manufacturers, creating jobs, and ensuring that American businesses have access to the resources
1349 that they need to compete and to grow.

1350 And I look forward to working with my colleagues, hopefully on a very bipartisan basis, to

1351 advance these bills and strengthen America's critical-mineral supply chains for the long haul.

1352 And I yield back, Mr. Chairman.

1353 Mr. Palmer. The gentleman yields.

1354 The chair now recognizes the gentleman from Florida, Mr. Soto, for 5 minutes for his
1355 questions.

1356 Mr. Soto. Thank you, Chairman.

1357 You know, looking at the need for rare-earth minerals, they are in just about everything and
1358 are critical to our way of life, whether it is cars or computers, cell phones, appliances, and other
1359 technology.

1360 And the demand is huge. When I look at my home State of Florida, 20 percent of vehicles
1361 last year were either EV or hybrids. And solar was a huge -- solar panels were a huge purchase last
1362 year, among others, although we do have to address the lapse of those tax credits. But people
1363 continue to buy these things, so we know the demand is huge.

1364 And we can mine it, and we can recycle it.

1365 We only have one major rare-earth mine site that does the processing, Eagle Pass in
1366 California. A lot of it comes from China and other countries. And so we are working on bipartisan
1367 efforts to increase our mining capacity, which is why I am supportive of, you know, making sure we
1368 clean up abandoned mines, like the Legacy Mine Cleanup Act, which is a good start.

1369 But, as we look at recycling today, we are going to be looking at used batteries, at coal ash
1370 landfill recycling, among other things. But the one that is most ready for prime time right now is
1371 the recycling of batteries.

1372 So the BRACE Act -- you know, we started talking about it today -- establishes standards for
1373 used lithium-ion batteries, making sure that we establish how to store this sufficiently to protect
1374 public safety. Of course, how to get there is a really key issue.

1375 In Orlando, we do mostly drop-offs with Greentech in the northern Orlando area. And then

1376 we see, in Georgia, in Covington, Ascend Elements, a major southeastern commercial-scale EV
1377 lithium battery recycling plant.

1378 We also see CHARM, where the EPA would develop a national critical-minerals recovery
1379 strategy, obviously very important for all these things.

1380 But the key is, how do we classify and treat used lithium-ion batteries? And I did want to
1381 hear from the panel on it of our esteemed experts.

1382 I will start with Mr. Klanecky.

1383 Give me some of the basics that my constituents can really, kind of, sort through as far as,
1384 how do you think we should treat and classify lithium-ion batteries to benefit improving recycling?

1385 Mr. Klanecky. Yeah, I think Mr. Goldberg -- sorry, Representative. Thank you for the
1386 question.

1387 I think Mr. Goldberg mentioned a few things about some of the -- there are transportation
1388 regulations, there are fire codes, there are OSHA regulations on how we actually handle lithium-ion
1389 batteries. So there is a lot of infrastructure or a lot of framework in place today on how we handle
1390 those materials and those batteries.

1391 Can it be improved? Absolutely. There are always opportunities to improve it. And, you
1392 know, we can't go a day where we don't see there has been some fire in a waste facility, right, where
1393 somebody has improperly disposed of batteries.

1394 So addressing up front, like you were asking, the collection of batteries -- how they are
1395 collected, how they are transported, how they are stored, things like that -- is something I think we
1396 have to be better with the public in educating on what needs to happen. You shouldn't throw a
1397 lithium-ion battery or a phone in your trash. That is not where that battery should go.

1398 We have a collection network across the country where we allow people to actually -- they
1399 can buy a pail system, and we will have the battery shipped to our facility and properly processed.
1400 So there are opportunities there for that.

1401 Mr. Soto. What parts of the BRACE Act do you think improve the situation?

1402 Mr. Klanecky. The BRACE Act, in my mind, it provides some very clear guidelines on how
1403 collection -- how we should manage, actually, the transport of lithium-ion batteries.

1404 It actually also, kind of, helps you understand what the classification of a lithium-ion battery is
1405 versus a solid waste. So that is where we are kind of trying to ask for some of those exemptions.

1406 Mr. Soto. Thank you.

1407 Dr. Dunn, where would you like to see improvements to the BRACE Act? Just top lines on
1408 this.

1409 Dr. Dunn. Thank you for the question.

1410 The waste classification and permitting that already exists we believe should stay. They are
1411 there for a reason, because there is a risk to human health from these products. And we can both
1412 abide by these regulations and also support our recycling facilities.

1413 At the moment, a lot of the issues they are seeing is a lack of feedstock, and we will see that
1414 increase around 2030 when most of the EVs that you are mentioning start to retire. And so that,
1415 really, uptick is essential to really boosting their profits.

1416 And as much as we can prioritize having batteries processed in the U.S. and having those
1417 minerals recovered, the better the industry will be supported. And we can do that without creating
1418 exemptions in bedrock environmental policy.

1419 Mr. Soto. Thank you for both your perspectives.

1420 And I yield back.

1421 Mr. Palmer. The gentleman yields.

1422 The chair now recognizes the gentleman from New Jersey, Mr. Menendez, for 5 minutes for
1423 his questions.

1424 Mr. Menendez. Thank you, Chairman.

1425 I appreciate today's conversation centered around increasing critical-mineral circularity

1426 through recycling and recovery. That goal is especially important for batteries, which power our
1427 daily lives and which rely on mineral resources that we must recover and reuse as much as possible.

1428 Extended producer responsibility, or EPR, is one policy approach to address battery disposal
1429 challenges. In 2024, New Jersey passed a first-of-its-kind EPR law for electric vehicle batteries to
1430 incentivize the recycling and sustainable management.

1431 Because these batteries contain valuable critical minerals such as lithium, cobalt, and nickel,
1432 collecting and recycling them can help us create a strong domestic supply of critical minerals while
1433 reducing human-health and environmental harms.

1434 That is why the Infrastructure Investment and Jobs Act directed the EPA to collaborate with
1435 the Department of Energy to develop an EPR framework for States that will address recycling goals,
1436 cost structures for mandatory recycling, reporting requirements, product design, collection models,
1437 and transportation of collected material.

1438 Dr. Dunn, it is my understanding that you have been engaged in conversations with the EPA
1439 and DOE on this effort, so let me ask you: How can EPR help boost EV battery recycling in the U.S.
1440 and lower the risk of batteries being mishandled or landfilled?

1441 Dr. Dunn. Thank you for the question.

1442 Yes, extended producer responsibility holds the producer responsible for ensuring those
1443 batteries are recycled and collected and those materials are recovered. And that is essential when
1444 the recycling isn't always profitable.

1445 These batteries are dispersed through the Nation, and they are also dangerous if they are not
1446 stored properly. So creating this kind of program really reduces the cost to public health and
1447 increases the mineral recovery. This will boost the recycling facilities, increase their feedstock, and
1448 also ensure a domestic supply.

1449 Mr. Menendez. I appreciate that.

1450 By ensuring that producers are responsible for managing EV batteries, EPR can help create a

1451 comprehensive and efficient system. Meanwhile, it can also increase, as you mention, critical
1452 feedstock for battery recyclers and ultimately bolster our domestic supply of critical minerals to meet
1453 our need for clean, affordable energy.

1454 Dr. Dunn, in your testimony, you mention the importance of high recovery rates in lithium-ion
1455 battery recycled -- recycle-ing -- recycli- -- we are going to just keep going -- making sure that we
1456 capture as much critical-mineral content as possible.

1457 How do minimum mineral recovery rates help maximize the environmental benefits of
1458 battery recycling?

1459 Dr. Dunn. Thank you. It is a tongue-twister for me as well.

1460 Mr. Menendez. I appreciate it. That is very kind of you.

1461 Dr. Dunn. Recovery rates are essential. It basically creates a minimum threshold of the
1462 lithium, nickel, manganese, and cobalt that are in the batteries. That means that the recovery isn't
1463 dependent on market volatility, which we are seeing in these critical minerals because of the extreme
1464 increase in demand and uncertain supply.

1465 This isn't a new idea. It was enacted in the European Union. They have 90 percent
1466 required recovery of nickel and cobalt, 50 and then 80 percent for lithium. And this is also
1467 something that is being taken up by Colorado.

1468 Mr. Menendez. Great.

1469 And sort of building off of this, can minimum mineral recovery rates paired with EPR help
1470 shield recycling companies from the volatility of global mineral prices?

1471 Dr. Dunn. Yes, I believe so, because then the producer of the battery is paying for the
1472 recycling.

1473 Mr. Menendez. Right.

1474 And from a U.S. perspective, this is probably the most efficient means of getting these critical
1475 minerals back into our system through recycle-cling -- recyclin- -- recycling -- wow. I don't know

1476 what is happening, but -- as opposed to sort of trying to restart American production, exploration, et
1477 cetera, right? So this is actually the most efficient means that we can explore, produce?

1478 Dr. Dunn. Yes, it is extremely efficient. I mean, we have all these minerals within our
1479 economy that most of -- and some of them that we have imported, and we can recover them and
1480 add them to our domestic production.

1481 Mr. Menendez. And, finally, I want to return to my point about New Jersey's leadership in
1482 battery EPR and why we should continue to build on the progress the State is already making.

1483 Can you talk about preserving State leadership on this front, the importance of it?

1484 Dr. Dunn. Yes. Many States have recognized the need for this kind of policy. It started
1485 with consumer electronic batteries because of the fires in landfills and others. And now it is moving
1486 to the bigger batteries, as these EVs come off line. The States are moving first, but it is something
1487 that the whole U.S. could benefit from.

1488 Mr. Menendez. Appreciate that. Thanks so much.

1489 I yield back.

1490 Mr. Palmer. I thank the gentleman.

1491 The chair now recognizes himself for 5 minutes for questions.

1492 I want to raise some points that really haven't been raised thus far in regard to China's control
1493 of practically the entire process for rare-earth elements and critical minerals.

1494 They already control 90 percent of the world's processing for heavy rare-earths, which allows
1495 them to basically control the cost and availability of critical elements for not just the United States
1496 but the entire Western Hemisphere. So they control the mining, the separation, the processing,
1497 and recycling and refining on the final stage for critical minerals and rare-earth elements that, like I
1498 said, the U.S. and the rest of the world depend on.

1499 One of the things that I want to run by you, particularly you, Mr. Klanecky, is: Extracting
1500 lithium and cobalt and neodymium is a very difficult process. China has developed the technology

1501 to do this at scale. And my guess is, they are not as concerned about environmental impact as we
1502 are. So we are not going to use the technology like China uses; we are going to do this better.

1503 But does the U.S. or any of our allies possess this ability to do this at scale currently?

1504 Mr. Klanecky. Yes, Representative Palmer. Thank you for the question.

1505 Yes, do possess that technology. We actually have it ready to go. The hydrometallurgical
1506 processing process is actually demonstrated in other countries as well. We haven't built one in the
1507 United States, but we've got the technology ready to be deployed.

1508 We actually have a grant that is being positioned to use for building a hydrometallurgical
1509 processing facility in South Carolina --

1510 Mr. Palmer. And we can do this without harming the environment?

1511 Mr. Klanecky. Absolutely. Absolutely. One hundred percent.

1512 Mr. Palmer. Also, we have talked a lot about batteries that we get -- if we could recycle
1513 magnets that are used in automobile manufacturing turbines, we could recover neodymium scrap
1514 alloys, we could recover gallium and germanium. Do we have the ability to do that?

1515 Mr. Klanecky?

1516 Mr. Klanecky. Yes. Sorry. Yeah, we do have the capability to do that. There is a
1517 number of companies out there that have started to actually look at deploying capital in the United
1518 States to be able to recover the rare-earth metals from magnets.

1519 Mr. Palmer. On another topic -- or, it is not -- it is the same topic, but -- my concern is that
1520 China is using front companies to buy up our e-waste and particularly batteries, like dead car
1521 batteries, things like that, to an extent that I think it is -- and it has been mentioned several times, I
1522 think, throughout this hearing -- that it is a threat to our national security. It is a threat to our
1523 economic security but our national security as well.

1524 And this is a question for each of you. Do you think we are at a point where we need to ban
1525 the export of recyclable e-waste and other materials containing critical minerals and rare-earth

1526 elements to non-aligned nations?

1527 Mr. Klanecky. Absolutely. I think that is one of the number-one priorities, is banning the
1528 export of these materials, whether it is a battery or gigafactory scraps. We have lots of
1529 gigafactories in the United States that are producing batteries. Ban the export of those waste
1530 materials, as well, because they are going outside the country today. China will pay a lot of money
1531 for those materials. And I think having a robust framework to ban the export of that would help our
1532 industry tremendously -- and keep those minerals here.

1533 Like I mentioned in my testimony, we pay a lot of money for those minerals to bring them
1534 here to build a battery in the United States, and we just let them go to China.

1535 Mr. Palmer. Well, it would also -- keeping them here would create a marketplace that I
1536 think would incentivize people to remove them from areas that are potentially harmful to people.

1537 Mr. Buckingham, what are your thoughts on it?

1538 Mr. Buckingham. Yes. Thank you, Mr. Chairman.

1539 I think it is essential that we keep our minerals here. We don't have a problem of geology or
1540 supply here in the United States. We have issues with processing and getting those up to the level
1541 to compete with China and in a streamlined and well-defined permitting process. And I think that is
1542 what we need to be able to unleash further production --

1543 Mr. Palmer. Dr. Dunn?

1544 Mr. Buckingham. -- via China.

1545 Dr. Dunn. Thank you for your question.

1546 I do believe that we can invest in our infrastructure here and incentivize the recovery, and
1547 that will lead to a lot more domestic supply and really fill the gap of feedstock that is necessary.

1548 Mr. Palmer. Thank you.

1549 Mr. Goldberg?

1550 Mr. Goldberg. Thank you again for your question.

1551 There are already certain restrictions on export of hazardous waste from the United States.
1552 But I think that, you know, for example, with China, that they have taken the position that the black
1553 mass is not a waste at all if it meets certain standards. And so they are sort of opening the door to
1554 exports of materials.

1555 So there are definitely things -- more things that the U.S. could be doing to ensure that the
1556 critical minerals stay within the country.

1557 Mr. Palmer. Yeah. We already banned certain products from being exported to China, but
1558 they are going through non-aligned nations and front companies to purchase them.

1559 The chair now recognizes the gentleman from Ohio, Mr. Landsman, for 5 minutes for his
1560 questions.

1561 Mr. Landsman. Thank you, Mr. Chair.

1562 Thank you all for being here.

1563 It is clear from everyone's comments that there is agreement about the domestic recovery
1564 and recycling of critical minerals and how important it is for our economy, jobs, national security, and
1565 our energy security.

1566 With a few exceptions, most of these bills in front of us today propose bipartisan ideas to
1567 expand critical-mineral recovery and recycling. And although many are, you know, works in
1568 progress and need additional guardrails, I appreciate my colleagues' efforts to work with us to get
1569 these drafts to a better place.

1570 And, along those lines, I wanted to focus on three areas with my questions. One is costs,
1571 what this work does to reduce costs for consumers and businesses, how to ensure we are doing that,
1572 you know, to the extent we can. The second is around investments. And the third is competition,
1573 particularly with China.

1574 The first question is for Dr. Dunn.

1575 Advancing critical-mineral recycling and recovery work does help to reduce the need to mine

1576 new minerals. It also helps us tap into important resources that would otherwise be wasted and
1577 end up in landfills.

1578 In the long run, how would increasing the amount of domestic recycled materials help bring
1579 down costs of critical minerals?

1580 Dr. Dunn. Thank you for the question.

1581 It really speaks to affordability. When we recover a lot of the minerals within our economy,
1582 we create a secondary supply. And that will help keep prices low for these minerals and also
1583 prevent price spikes due to supply-and-demand changes or any geopolitical risks.

1584 Mr. Landsman. Yeah, I think the latter is really important, because everything is here
1585 already, and that, in and of itself, makes such a huge difference.

1586 Many critical minerals are key components of batteries for cost-cutting clean-energy
1587 technologies, such as energy storage, solar panels, and electric vehicles.

1588 As part of the One Big Beautiful Bill, there were over \$500 billion in cuts to key investments in
1589 clean-energy work. These clean-energy tax credits helped create strong domestic demand in the
1590 United States for critical minerals, which is essential to our critical-mineral supply chain.

1591 Also to Dr. Dunn: How did these cuts hurt companies looking to invest in rebuilding
1592 American leadership in this area?

1593 Dr. Dunn. Thank you for that question.

1594 Yeah, our reduced investment in electrification and manufacturing in this country has
1595 really -- it will result in probably less EVs on the road and, therefore, less end-of-life batteries going to
1596 recycling.

1597 In addition, the reduced investment in the manufacturing of these batteries in the U.S. means
1598 that that scrap is not going to these recycling facilities.

1599 As I said before, one of the big hurdles that recyclers have to get through is the lack of
1600 feedstock at the moment, because a lot of the batteries have not retired yet. They are relying on a

1601 lot of manufacturing scrap. And by slowing the progress towards a clean economy and the
1602 manufacturing here in the U.S., it is hurting the recycling companies.

1603 Mr. Landsman. Yeah. I mean, I just suspect we are going to see a big dip in the number of
1604 batteries being recycled here.

1605 Mr. Buckingham, the last one is for you.

1606 An area where I think we can all agree is that reducing our reliance on China for
1607 critical-mineral processing, refining, and recycling will reduce cost for Americans. How will these
1608 bills help increase our critical-mineral independence?

1609 Mr. Buckingham. Yes. Thank you, Representative.

1610 And I think it is all about bringing down that total cost of production, and that is how we win,
1611 is by being economically competitive.

1612 You know, in the case of abandoned uranium mines, being able to recycle uranium that would
1613 otherwise be discarded and have that enter the fuel cycle, you know, is directly passed on to the
1614 consumers.

1615 And then in, you know, typical mineral processing, we are competing, for example, with ball
1616 mills and rod mills, grinding technologies that have been around literally since the medieval ages.
1617 And so, by new innovations, you know, you are going to have massive savings in OpEx, CapEx, energy
1618 savings.

1619 And that is how we win the day, is through innovation. These bills help do just that.

1620 Mr. Landsman. Thank you.

1621 Mr. Chair, I yield back.

1622 Mr. Palmer. The gentleman yields.

1623 I would like to thank our witnesses for being here today.

1624 And you should note that members may have additional questions for you.

1625 I will remind the members that they have 10 business days to submit additional questions for

1626 the record and ask the witnesses to do their best to submit responses within 10 business days upon
1627 receipt of the questions.

1628 [The information follows:]

1629

1630 ***** COMMITTEE INSERT *****

1631

1632 Mr. Palmer. I ask unanimous consent to insert in the record the documents included on the

1633 staff hearing documents list.

1634 Without objection, that will be the order.

1635 [The information follows:]

1636

1637 ***** COMMITTEE INSERT *****

1638

1639 Mr. Palmer. Without objection, the subcommittee is adjourned.

1640 [Whereupon, at 12:13 p.m., the subcommittee was adjourned.]

1641

1642