



## MEMORANDUM

April 24, 2023

TO: Members of the Subcommittee on Environment, Manufacturing, and Critical Materials

FROM: Committee Majority Staff

RE: Hearing entitled, “Exposing the Environmental, Human Rights, and National Security Risks of the Biden Administration’s Rush to Green Policies”

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### I. INTRODUCTION

On Wednesday, April 26, 2023, at 10:30 a.m., the Subcommittee on Environment, Manufacturing, and Critical Materials will hold a hearing in 2322 Rayburn House Office Building entitled, “Exposing the Environmental, Human Rights, and National Security Risks of the Biden Administration’s Rush to Green Policies.”

### II. WITNESSES

- **Mark Mills**, Senior Fellow, Manhattan Institute
- **Ashley Nunes**, Director of Federal Policy, Climate, and Energy, Breakthrough Institute
- **Daniel Simmons**, Principal, Simmons Energy and Environmental Strategies
- **Trevor Higgins**, Senior Vice President, Energy and Environment, Center for American Progress

### III. BACKGROUND

#### A. Biden Administration Policies

Beginning on his first day in office, President Biden has imposed a “rush to green” policy agenda through the issuance of executive orders and new regulations that have raised the price of energy and electricity, as well as increased America’s dependence on China, OPEC, and Russia for energy supplies. Specifically, the Biden administration has advanced a “whole-of-government” effort to increase regulations across many sectors of the economy.<sup>1</sup> Through the championing the expansive policy and unprecedented spending of the Infrastructure Investment and Jobs Act<sup>2</sup> and the Inflation Reduction Act,<sup>3</sup> signing nine unique executive orders on

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<sup>1</sup> See “[The Biden-Harris Administration Immediate Priorities](#),” The White House, April 2023.

<sup>2</sup> P.L. 117-58

<sup>3</sup> P.L. 117-169

climate,<sup>4</sup> and coordinating a cross-agency effort to increase energy and environmental regulations, President Biden is leading a “rush to green.”

For example, President Biden canceled the permit for the Keystone XL pipeline, issued a moratorium on oil and gas drilling on federal lands and waters, deliberately delayed Federal Energy Regulatory Commission (FERC) pipeline certifications, pleaded with OPEC, Russia, and Venezuela to increase oil production, and violated U.S. trade laws by allowing Chinese solar panel companies to evade tariffs. In combination, the Biden administration's actions are picking winners and losers in United States energy markets based on energy technology rather than emissions reductions.

More recently, the Environmental Protection Agency's (EPA) proposed “Multi-Pollutant Emission Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles” aims to electrify the transportation sector. Under the proposal, electric vehicles (EVs) are projected to account for 67 percent of new light-duty vehicle sales in model year 2032.<sup>5</sup> In the proposed rule, EPA acknowledged that a “transition period must take place in which a robust supply chain develops to support production of [critical minerals],” but in the rulemaking, the Agency did not account for the time and scale necessary to build up that supply chain.<sup>6</sup>

Given the scale and pace of the Biden administration's “whole-of-government effort” on climate, it is important to understand the environmental, human rights, and national security risks associated with such policies and mandates.

## **B. Critical Materials and Supply Chains**

To have a complete accounting of the full impacts of energy technologies, it is essential to examine the environmental, human rights, and national security issues associated with critical material inputs, such as critical minerals. The International Energy Agency (IEA) emphasized, “[m]inerals offer a different and distinct set of challenges, but their rising importance in a decarbonizing energy system requires energy policy makers to expand their horizons and consider potential new vulnerabilities.”<sup>7</sup>

Each energy technology from wind to solar to EVs requires a specific mix of critical materials, including critical minerals and rare earth elements. Under IEA's Stated Policies Scenario (which includes enacted legislation and final regulations), the overall demand for critical minerals is expected to double by 2040.<sup>8</sup> As production increases to meet demand, current challenges with critical mineral mining, processing, and refining will only intensify.<sup>9</sup>

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<sup>4</sup> See Joseph R. Biden J.R. Executive Orders for 2021, 2022, and 2023 in the [Federal Register](#) for the full list.

<sup>5</sup> See “[Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles](#),” RIN: 2060-AV49, Environmental Protection Agency, April 2023.

<sup>6</sup> *Id.*

<sup>7</sup> See “[The Role of Critical Minerals in Clean Energy Transitions](#),” International Energy Agency, March 2022.

<sup>8</sup> *Id.*

<sup>9</sup> See “[Critical Minerals: Building on Federal Efforts to Advance Recovery and Substitution Could Help Address Supply Risks](#),” Government Accountability Office, June 2022.

The United States Geological Survey's (USGS) 2022 list of critical minerals includes 50 unique commodities, and the Energy Act of 2020 requires the Department of the Interior to update a list of critical minerals at least every three years.<sup>10</sup> The most recent list includes aluminum, chromium, cobalt, copper, manganese, nickel, and zinc.<sup>11</sup> The Department of Energy (DOE) defines rare earth elements as 17 elements<sup>12</sup> that “play a critical role to our national security, energy independence, environmental future, and economic growth.”<sup>13</sup> 16 of the 17 individual rare earth elements are included in the 2022 USGS list of critical minerals.<sup>14</sup>

Focusing on specific energy technologies, wind power installations require significant amounts of copper, aluminum, and rare earth elements that comprise permanent magnets.<sup>15</sup> The Congressional Research Service (CRS) noted that manufacturing wind turbines “would be 100% dependent on permanent magnet imports, primarily from China.”<sup>16</sup> In addition, solar energy projects rely on aluminum, indium, gallium, and tellurium.<sup>17</sup> IEA projected that expansion of solar energy projects will increase the demand of cadmium, tellurium, silicon, arsenic, gallium, and indium, depending on the type of solar photovoltaic (PV) technology.<sup>18</sup> Similarly, EV batteries rely on five critical minerals: lithium, cobalt, manganese, nickel, and graphite.<sup>19</sup> Compared to a conventional internal combustion engine car, an electric car requires six times the mineral inputs.<sup>20</sup> Furthermore, IEA estimated that the demand for lithium will increase by 43 times by 2040.<sup>21</sup>

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Critical minerals are crucial for renewable energy technologies and EVs and batteries, and China dominates much of those supply chains. According to a recent Brookings report:

- China refines 68 percent of nickel globally, 40 percent of copper, 59 percent of lithium, and 73 percent of cobalt;
- China dominates global production of battery cells, including 70 percent of cathodes, 85 percent of anodes, 66 percent of separators, and 62 percent of electrolytes;
- China has 78 percent of the world's cell manufacturing capacity for EV batteries;
- Three-fourths of the world's lithium-ion battery megafactories are located in China; and

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<sup>10</sup> P.L. 116-260

<sup>11</sup> See “[2022 Final List of Critical Minerals](#),” DOI-2021-0013, Department of the Interior, U.S. Geological Survey, February 22, 2022.

<sup>12</sup> See the list of 17 rare earth elements from the “[Report on Rare Earth Elements from Coal and Coal Byproducts](#),” Department of Energy, January 2017.

<sup>13</sup> See “[Rare Earth Elements](#),” Department of Energy, April 2023.

<sup>14</sup> *Id.*

<sup>15</sup> See “[Projected Demand for Critical Minerals Used in Solar and Wind Energy Systems and Battery Storage Technology](#),” Congressional Research Service, September 10, 2019.

<sup>16</sup> *Id.*

<sup>17</sup> *Id.*

<sup>18</sup> See “[The Role of Critical Minerals in Clean Energy Transitions: Mineral Requirements for Clean Energy Transitions](#),” International Energy Agency, March 2022.

<sup>19</sup> See “[Critical Minerals in Electric Vehicle Batteries](#),” Congressional Research Service, August 29, 2022.

<sup>20</sup> See note 16.

<sup>21</sup> *Id.*

- China is “the largest consumer of the minerals it refines”.<sup>23</sup>

Meanwhile, China is unquestionably the largest emitter of greenhouse gas emissions in the world, far surpassing all other developed countries.<sup>24</sup> Consequently, a push for 100 percent wind and solar, and EVs, without first building out our domestic critical minerals supply chains, means we will be dependent upon China and its polluting tactics.

### *Environmental Risks*

According to the Brookings Institution, the level of enforcement of due diligence requirements in China's mineral sector and midstream and downstream industries (e.g., refiners or original equipment manufacturers) is key to the future of making critical mineral supply chains “cleaner” and “greener.”<sup>25</sup> The IEA has identified several negative environmental impacts associated with critical minerals production around the world, such as increased greenhouse gas emissions from mining and processing, environmental degradation due to changes in land use, pollution of the surrounding air and water resources, and waste from excavation.<sup>26</sup> Additionally, raw ores need to be processed into usable minerals for renewable technologies. In 2019, China was found to contribute 27 percent of all greenhouse gas emissions -- more than all the other nations of the earth, combined.<sup>27</sup> Moreover, to help fuel these efforts, Chinese provinces approved more new coal power plants in the first three months of this year than in all of 2021.”<sup>28</sup>

In contrast, mining operations in the United States are heavily regulated to mitigate environmental impacts while allowing for the extraction of critical resources. Domestic critical minerals mining projects must comply with statutory requirements under the Clean Air Act, the Resource Conservation and Recovery Act (RCRA), the Toxic Substances Control Act (TSCA), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Clean Water Act, the National Environmental Policy Act (NEPA).<sup>29</sup> As of today, very little critical mineral extraction and processing occurs in the United States, which means that the environmental risks posed by other countries are even more significant, as the United States will be reliant upon critical mineral imports from countries with questionable environmental standards.

### *Human Rights Risks*

In 2021, 70 percent of global cobalt production, which is essential for EV batteries, occurred in the Kinshasa region of the Democratic Republic of the Congo (Congo).<sup>30</sup> The Congo

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<sup>23</sup> See “China's Role in Supplying Critical Minerals for the Global Energy Transition: What Could the Future Hold?” Brookings, August 1, 2022.

<sup>24</sup> <https://www.c2es.org/content/international-emissions/>

<sup>25</sup> [https://www.brookings.edu/wp-content/uploads/2022/08/LTRC\\_ChinaSupplyChain.pdf](https://www.brookings.edu/wp-content/uploads/2022/08/LTRC_ChinaSupplyChain.pdf)

<sup>26</sup> See “[The Role of Critical Minerals in Clean Energy Transitions: Sustainable and Responsible Development of Minerals](#),” International Energy Agency, March 2022.

<sup>27</sup> New report says China emits more greenhouse gasses than all other developed nations combined – The Hill

<sup>28</sup> China's Coal Power Building Plans Are Still at a Frenzied Pace - Bloomberg

<sup>29</sup> See “[What are Environmental Regulations on Mining Activities?](#)” American Geosciences Institute, 2023.

<sup>30</sup> See “[Mineral Commodity Summaries 2022: Cobalt](#),” United States Geological Survey, 2022.

is also home to more than half of worldwide cobalt reserves.<sup>31</sup> Approximately 40,000 Congolese children mine for cobalt under the incredibly harsh conditions known as “artisanal and small-scale mining,” where the children search for critical minerals by digging with their hands.<sup>32</sup> Touching on child and forced labor in the region, the Department of Labor (DOL) warned that,

Tens of thousands of children work in cobalt and copper mining in the Congo's southern Copperbelt region. This is a worst form of child labor due to the extremely dangerous nature of mining. Adults who mine these minerals also suffer from labor exploitation and unsafe conditions, such as collapsing tunnels and debt-based coercion.<sup>33</sup>

The State Department corroborated the severe human rights abuses in the Congo, and the Government Accountability Office (GAO) released a report on actions to address human rights abuses associated with cobalt mining in the Congo.<sup>34</sup> Focusing on first-hand accounts, Siddharth Kara's book “Cobalt Red” details the “exploitation of the poorest people of the Congo.”<sup>35</sup>

Forced labor (i.e., enslavement) and child labor concerns are not unique to the Congo. Solar modules, solar cells, polysilicon, and photovoltaic wafers produced in China are characterized by the DOL's Bureau of International Labor Affairs as having inputs produced with forced labor.<sup>36</sup> Forced labor conditions are especially acute in the Xinjiang region of China due to the persecution of the Uyghur Muslim community.<sup>37</sup> Congress took action to help prevent goods, including solar panels, produced with forced labor in China from entering the U.S. through the passage of the Uyghur Forced Labor Prevention Act in late 2021, but work remains to fully secure solar supply chains against forced labor. In addition, lithium-ion batteries from China are considered to include inputs produced with child labor.<sup>38</sup>

### *National Security Risks*

China dominates critical mineral supply chains, which poses heightened security and supply chain risks for the United States.<sup>39</sup> Currently, China controls 50 to 70 percent of lithium

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<sup>31</sup> *Id.*

<sup>32</sup> See “[The DRC Mining Industry: Child Labor and Formalization of Small-Scale Mining](#),” Wilson Center, September 1, 2021.

<sup>33</sup> See “[Strengthening Labor Rights in the Mining Sector Abroad: Our Visit to the Democratic Republic of the Congo](#),” U.S. Department of Labor, March 14, 2022.

<sup>34</sup> See “[Conflict Minerals: Actions Needed to Assess Progress Addressing Armed Groups' Exploitation of Minerals](#),” Government Accountability Office, September 14, 2020.

<sup>35</sup> See “[‘Cobalt Red’ Review: The Human Price of Cobalt](#),” Wall Street Journal, February 1, 2023.

<sup>36</sup> See “[List of Goods Produced by Child Labor or Forced Labor](#),” Department of Labor, Bureau of International Labor Affairs, September 28, 2022.

<sup>37</sup> See “[A Dark Spot for the Solar Energy Industry: Forced Labor in Xinjiang](#),” Center for Strategic and International Studies, April 19, 2021.

<sup>38</sup> See note 33.

<sup>39</sup> See “[China's Role in Supplying Critical Minerals for the Global Energy Transition](#),” Brookings, July 2022.

and cobalt refining and 90 percent of global refining capacity for rare earth elements.<sup>40</sup> China is also the top producing country of rare earth elements, cobalt, lithium, copper, and nickel.<sup>41</sup> Moreover, Chinese companies are heavily invested in critical mineral projects in Australia, Chile, the Democratic Republic of the Congo (Congo), and Indonesia.<sup>42</sup> China controls seven of the largest cobalt mines in the Congo -- known for slave and child labor practices -- which contain 70 percent of the world's cobalt supply.<sup>43</sup>

Another national security concern, including economic and energy security, with the expansion of renewable energy is the price of critical mineral commodities. The IEA stressed that, "critical minerals threaten a decades-long trend of cost declines for clean energy technologies."<sup>44</sup> On EVs specifically, the National Wildlife Federation emphasized that, "the fluctuating price of critical minerals can greatly affect battery price,"<sup>45</sup> which in turn impacts the overall price of an EV. The price of lithium, a key input for EV batteries, increased by 738 percent from January 2021 to March 2022.<sup>46</sup> Prices for cobalt, nickel, aluminum, and copper all significantly increased over the same time period and raised the cost of wind turbines by 9 percent and solar PV modules by 16 percent.<sup>47</sup>

Geopolitical events also influence commodity pricing for critical minerals. On March 8, 2022, the London Metal Exchange suspended nickel trading after the price of the commodity doubled to over \$100,000 per ton in response to Russia's invasion of Ukraine and coordinated sanctions by various countries.<sup>48</sup> Russia accounted for 9.3 percent of nickel production in 2021 and represented the third largest producing country.<sup>49</sup>

### **C. Operation and Deployment of Renewable Energy Technologies**

The U.S. Energy Information Administration (EIA) indicated that the primary energy consumption by energy source in the United States in 2021 was 36 percent petroleum, 32 percent natural gas, 12 percent renewable energy, 11 percent coal, and 8 percent nuclear power. Of the renewable energy portion, the breakdown is 40 percent biomass, 27 percent wind, 19 percent hydroelectric, 12 percent solar, and 2 percent geothermal.<sup>50</sup> Given the EIA statistics, wind energy accounts for 3.2 percent of total U.S. primary energy consumption, and solar energy accounts for 1.4 percent of total U.S. primary energy consumption. According to a recent PEW Research

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<sup>40</sup> See "[The Role of Critical Minerals in Clean Energy Transitions: Executive Summary](#)," International Energy Agency, March 2022.

<sup>41</sup> *Id.*

<sup>42</sup> *Id.*

<sup>43</sup> See, "China, Cobalt and the Congo: Why Xi Jinping is Winning the 'batteries arms race,'" NS Energy, August 13, 2019.

<sup>44</sup> See "[Critical Minerals Threaten a Decades-Long Trend of Cost Declines for Clean Energy Technologies](#)," International Energy Agency, May 18, 2022.

<sup>45</sup> See "[Critical Minerals for Clean Energy Reference Guide](#)," National Wildlife Federation, 2022.

<sup>46</sup> See note 17.

<sup>47</sup> *Id.*

<sup>48</sup> See "[LME Forced to Halt Nickel Trading, Cancel Deals, After Prices Top \\$100,000](#)," Reuters, March 8, 2022.

<sup>49</sup> See "[Distribution of Mine Production of Nickel Worldwide in 2021, by Country](#)," Statista, March 3, 2023.

<sup>50</sup> See "[U.S. Energy Facts Explained](#)," U.S. Energy Information Administration, 2021.

Center Study, 67 percent of adults in the United States support using a mix of energy sources including oil, coal, and natural gas along with renewable sources.<sup>51</sup>

Focusing on EVs, the Biden administration acknowledges that three million EVs are currently on American roads,<sup>52</sup> which is only 1 percent of the 278 million cars registered to United States drivers.<sup>53</sup> According to the EPA's proposed standards for light- and medium-duty vehicles, the Biden administration aims to increase the new EV sales from 4.5 percent to 67 percent by model year 2032.<sup>54</sup>

### *Environmental Risks*

Renewable energy projects, notably wind and solar energy installations, require a significant amount of land. Simply stated, "The U.S. will need a lot of land for a zero-carbon economy."<sup>55</sup> A Brookings report highlighted that "wind and solar generation require at least 10 times as much land per unit of power produced than coal- or natural-gas fired power plants."<sup>56</sup>

The National Renewable Energy Laboratory estimated that solar PVs would need an average of 5 acres per megawatt of generated electricity, and wind energy would need an average of 35 acres per megawatt of generated electricity.<sup>57</sup> A study from Princeton University evaluated total land use for solar and wind by 2050 under various decarbonization scenarios, with wind and solar projects potentially taking up 1.1 million km<sup>2</sup> of land, an area equivalent to the size of Missouri, Illinois, Indiana, Ohio, Kentucky, Tennessee, Massachusetts, Connecticut, and Rhode Island combined.<sup>58</sup> The study also notes that "direct land use for wind-turbine pads in net-zero scenarios is small, but the visual footprint of wind farms is significant."<sup>59</sup> For solar energy installations, the "directly impacted lands are greater."<sup>60</sup> EIA also illustrated that "the amount of sunlight reaching a square foot on the earth's surface is relatively small, so a large surface area is necessary to absorb or collect enough energy to be useful."<sup>61</sup>

The United States Fish and Wildlife Service referenced that wind energy facilities have been found to kill birds and bats.<sup>62</sup> Various studies estimate the average number of bird fatalities per year due to wind farms to be between 234,000 and 573,093.<sup>63</sup>

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<sup>51</sup> See "[What the Data Says about Americans' Views of Climate Change](#)," Pew Research Center, April 18, 2023.

<sup>52</sup> See "[Fact Sheet: Biden-Harris Administration Announces New Standards and Major Progress for a Made-in-America National Network of Electric Vehicle Chargers](#)," The White House, February 15, 2023.

<sup>53</sup> See "[Car Ownership Statistics 2023](#)," Forbes, March 7, 2023.

<sup>54</sup> See note 5.

<sup>55</sup> See "[The U.S. Will Need a Lot of Land for a Zero-Carbon Economy](#)," Bloomberg, April 29, 2021.

<sup>56</sup> See "[Renewables, Land Use, and Local Opposition in the United States](#)," Brookings, January 2020.

<sup>57</sup> See "[Land Use by System Technology](#)," National Renewable Energy Laboratory, 2015.

<sup>58</sup> See "[Net-Zero America: Potential Pathways, Infrastructure, and Impacts](#)," Princeton University, October 29, 2021.

<sup>59</sup> *Id.*

<sup>60</sup> *Id.*

<sup>61</sup> See "[Solar Explained](#)," U.S. Energy Information Administration, April 2023.

<sup>62</sup> See "[Wind Energy](#)," United States Fish and Wildlife Service, April 2023.

<sup>63</sup> See "[How Many Birds are Killed by Wind Turbines?](#)," Beyond Nuclear International, April 2021.

### *Risks of Negative Impacts on Americans*

Renewable energy, including solar and wind energy, poses challenges to electric reliability for American energy consumers. Both solar and wind are weather-dependent, intermittent energy sources that cannot be relied upon to provide baseload power. For example, EIA emphasized that a limitation of solar energy is “the availability and amount of sunlight that arrives at the earth’s surface varies depending on time of day, location, season of the year, and weather conditions.”<sup>64</sup>

The cost of operation and maintenance of EVs presents challenges for Americans. In 2022, the average price of an EV was \$17,197 more than the average price of an internal combustion engine vehicle.<sup>65</sup> Range anxiety, lengthy charging times, and reduced performance in extreme hot or cold weather also make EVs less attractive for American consumers. The Department of Energy noted that the median range for gasoline vehicles was 403 miles, and the median range for EVs was 234 miles, for the 2021 model year.<sup>66</sup>

Furthermore, electric vehicle charging speeds directly impact the everyday lives of Americans. The Department of Transportation (DOT) explained that Level 1 chargers can take 40-50 hours to charge fully a battery electric vehicle from empty and five to six hours to charge fully a plug-in hybrid electric vehicle from empty.<sup>67</sup> Level 2 chargers can charge a battery electric vehicle from empty in four to 10 hours and a plug-in hybrid electric vehicle in one to two hours.<sup>68</sup> Even the quickest option with Direct Current Fast Charging Technology charges a battery electric vehicle to 80 percent in 20 minutes to an hour.<sup>69</sup>

### **D. End-of-Life**

When renewable energy technologies reach the end of their lifespan, which is estimated to be 30 to 35 years for solar panels, 20 to 25 years for wind turbines, and at least 10 years for EV batteries, proper disposal is essential for environmental protection. The International Renewable Energy Agency estimates that global solar panel waste could reach 78 million tons by 2050.<sup>70</sup> The United States alone is expected to generate between 7.5 million and 10 million tons of solar waste, with the risk of additional solar panel waste with early retirements and broken panels.<sup>71</sup> For wind, the Department of Energy considers landfilling to be the “most cost-effective option,” and wind turbine blade waste could amount to between 200,000 and 370,000 tons annually by 2050.<sup>72</sup>

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<sup>64</sup> See “[Solar Explained](#),” U.S. Energy Information Administration, April 2023.

<sup>65</sup> See “[Electric Car FAQs](#),” Kelly Blue Book, October 31, 2022.

<sup>66</sup> See “[FOTW #1221. January 17, 2022: Model Year 2021 All-Electric Vehicles Had a Median Driving Range about 60% That of Gasoline Powered Vehicles](#),” Department of Energy, Vehicle Technologies Office, January 17, 2022.

<sup>67</sup> See “[Electric Vehicle Charging Speeds](#),” Department of Transportation, February 2, 2022.

<sup>68</sup> *Id.*

<sup>69</sup> *Id.*

<sup>70</sup> See “[End-of-Life Management: Solar Photovoltaic Panels](#),” International Renewable Energy Agency, June 2016.

<sup>71</sup> *Id.*

<sup>72</sup> See “[End of Service Wind Turbine Guide](#),” Department of Energy, Office of Energy Efficiency and Renewable Energy, April 2023.

Recycling is one option for renewables at the end-of-life, but the cost and lack of scale of recycling technologies present significant obstacles. For example, the average cost to recycle one solar panel is between \$20 and \$30 but disposing of one solar panel at a landfill only costs \$1 or \$2.<sup>73</sup> The sheer size of wind turbines makes them difficult and expensive to recycle<sup>74</sup>, with the average hub height for onshore wind at 308 feet and the projected average hub height for offshore wind at 500 feet.<sup>75</sup> On average, decommissioning costs \$114,000 to \$195,000 per turbine.<sup>76</sup> For EVs, only 5 percent of lithium-ion batteries for EVs are currently recycled,<sup>77</sup> compared to 99.3 percent of lead-acid batteries for traditional vehicles.<sup>78</sup>

Disposal of solar panels and EV batteries also presents risks with the management of hazardous waste. The Environmental Protection Agency considers certain solar panel waste with high levels of lead and cadmium to be hazardous waste regulated under Subtitle C of RCRA.<sup>79</sup> Similarly, lithium batteries are characterized as hazardous waste, which is regulated by the Department of Transportation's Hazardous Materials Regulations.<sup>80</sup>

#### IV. ISSUES

The following issues may be examined at the hearing:

- The environmental, human rights, and national security risks of wind energy, solar energy, and electric vehicles on Americans based upon the scale and pace that it is being forced on Americans.
- Risks associated with the critical mineral inputs, operation and deployment of renewable energy technologies, and end-of-life disposal, particularly if rapidly required.
- The potential negative impacts of various energy technologies on American consumers, particularly if forced on them in compressed timeframes.

#### V. STAFF CONTACTS

If you have any questions regarding this hearing, please contact Mary Martin, Brandon Mooney, Jerry Couri, or Sarah Alexander of the Committee Staff at (202) 225-3641.

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<sup>73</sup> See "[The Dark Side of Solar Power](#)," Harvard Business Review, June 18, 2021.

<sup>74</sup> See "[What Happens to All the Old Wind Turbines?](#)," BBC, February 7, 2020.

<sup>75</sup> See "[Wind Turbines: the Bigger, the Better](#)," Department of Energy, Office of Energy Efficiency and Renewable Energy, August 16, 2022.

<sup>76</sup> See note 71.

<sup>77</sup> See "[A Better Way to Recycle Lithium Batteries is Coming Soon from This Princeton Startup](#)," Princeton University, March 3, 2022.

<sup>78</sup> See "[National Recycling Rate Study](#)," SmithBucklin Statistics Group, November 2019.

<sup>79</sup> See "[End-of-Life Solar Panels: Regulations and Management](#)," Environmental Protection Agency, April 2023.

<sup>80</sup> See "[Used Lithium-Ion Batteries](#)," Environmental Protection Agency, April 2023.