July 25, 2025

U.S. Department of Energy
DE-FOA-0003568-RFI
Submitted electronically to EnergyCriticalMaterialsRFI@ee.doe.gov

Re: DE-FOA-0003568: Request for Information (RFI) to Provide Feedback on Critical Materials Assessment

Contact information:

Earthjustice
Caroline Weinberg
cweinberg@earthjustice.org
Cameron Walkup
cwalkup@earthjustice.org
Jordan French
jfrench@earthjustice.org

Allegheny-Blue Ridge Alliance
Daniel Shaffer
dshaffer@abralliance.org

Appalachian Voices
Kevin Zedack
kevin@appvoices.org

Center for Biological Diversity
Stephanie Kurose
skurose@biologicaldiversity.org

Citizens Coal Council
Aimee Erickson
aimee@citizenscoalcouncil.org

Earthworks
Aaron Mintzes
amintzes@earthworksaction.org

Friends of the Earth
Sarah Lutz
slutz@foe.org

Kentucky Resources Council, Inc.
Ashley Wilmes
ashley@kyrc.org

Montana Environmental Information Center
Anne Hedges
ahedges@meic.org

Public Citizen
Carly Oboth
coboth@citizen.org

Sierra Club
Nathaniel Shoaff
nathaniel.shoaff@sierraclub.org

West Viriginia Highlands Conservancy
Marilyn Shoenfeld
olivia.miller@wvhighlands.org

This comment is focused on the Department of Energy's ("DOE") potential inclusion of metallurgical coal in its 2026 Critical Materials Assessment, which does not meet the definition of a critical material. In DOE's Request for Information ("RFI") titled "Energy Critical Materials Assessment," Question 7.1 asks for commentors to "provide any recommendations on how best to streamline the critical materials and minerals lists offered by DOE and DOI."[1] A straightforward way to streamline these lists is to remove anything that does not meet the definition of a "critical material." DOE defines critical materials as "(A) any non-fuel mineral, element, substance, or material that the Secretary of Energy determines (i) has a high risk of a supply chain disruption and (ii) serves an essential function in 1 or more energy technologies, including technologies that produce, transmit, store, and conserve energy; or (B) a critical

[1] DOE, DE-FOA-0003568: Request for Information: Energy Critical Materials Assessment at 13, https://eere-exchange.energy.gov/#FoaId20f54be6-7c3d-42ed-a986-21fbcdd0aa6f, ("RFI").

mineral."[2] As discussed below, metallurgical coal does not meet that definition, and we, the concerned groups listed above, urge you to exclude it from the 2026 Critical Materials List.

I. Metallurgical Coal is Not a "Critical Material."

As noted in footnote five of the RFI, "the Department of Energy has initiated a short-term supplemental analysis for metallurgical coal for steel production in response to Executive Order 14261 (Reinvigorating America's Beautiful Clean Coal Industry and Amending Executive Order 14241) to support a criticality determination for metallurgical in 2025."[3] In fact, in May of this year, U.S. Secretary of Energy Chris Wright announced the designation – without any notice or opportunity for comment – of coal used in the production of steel (metallurgical coal or "coking" coal, inclusive of anthracite coal) as a critical material under the Energy Act of 2020 and the Energy Critical Materials list was updated to reflect this.[4] To support this designation, the DOE has published an analysis of metallurgical coal for steelmaking,[5] but this analysis is flawed and insufficient. Metallurgical coal does not meet the definition of a "critical material" and should not be included on the DOE critical materials list and should not be evaluated in the 2026 Energy Critical Materials Assessment.

A. DOE's May 2025 Analysis is Flawed and does Not Demonstrate that Metallurgical Coal is a "Critical Material."

i. The Analysis does not demonstrate that metallurgical coal is a "non-fuel."

As stated above, The Energy Act of 2020 defines a "critical material" as explicitly "non-fuel."[6] In their assessment, DOE asserts that "coal used in the steel-making process serves a non-fuel mineral purpose and therefore satisfies the first criteria of the Act."[7] However, the Energy Act's definition does not invoke the "purpose" of the material; it simply states that the designation only applies to non-fuel materials. DOE's analysis notes that "metallurgical coal may be used in thermal applications."[8] This means that metallurgical coal, inclusive of anthracite, is a fuel material, and thus falls outside of the statutory definition of a "critical material." Similarly, the "critical mineral" definition, which is invoked in part B of the "critical material" definition provided above, also specifically excludes "fuel minerals," so metallurgical coal and anthracite similarly do not meet this definition.[9] In fact, The Mining and Mineral Policy Act of 1970

---

[2] Section 7002(a)(2) of the Energy Act of 2020 (codified at 30 U.S.C. § 1606(a)(2)).
[3] RFI at p. 5.
[4] DOE, *Energy Department Designates Coal Used in Steelmaking as a Critical Material, Strengthening U.S. Energy and Manufacturing Security*, https://www.energy.gov/articles/energy-department-designates-coal-used-steelmaking-critical-material-strengthening-us; DOE, *What Are Critical Materials and Critical Minerals?*, https://www.energy.gov/cmm/what-are-critical-materials-and-critical-minerals.
[5] DOE, *The Intrinsic Role of Coal in Achieving Steel Dominance* (May, 2025), https://www.energy.gov/sites/default/files/2025-05/doe-intrinsic-role-of-coal-in-achieving-steel-dominance.pdf ("DOE Analysis of Metallurgical Coal").
[6] Section 7002(a)(2) of the Energy Act of 2020 (codified at 30 U.S.C. § 1606(a)(2)).
[7] DOE Analysis of Metallurgical Coal at 2.
[8] *Id.* 5.
[9] Section 7002(a)(3) of the Energy Act of 2020.

explicitly defines coal as a mineral fuel.[10] Evidently, metallurgical coal (inclusive of anthracite) does not meet the definition of "non-fuel."

ii. *Metallurgical coal does not have a high risk for supply chain disruption, and DOE's analysis reflects this.*

As noted above, a "critical material" must have a high risk of a supply chain disruption. Similarly, in the RFI, Questions 2.2, 3.2, 3.3 focus on "supply chain risks or bottlenecks," "barriers to production in the United States," and general supply concerns.[11] Metallurgical coal is not currently facing such barriers or disruptions, and DOE's analysis reflects this. While DOE claims that the metallurgical coal market is "on track for significant import reliance," the data presented in the analysis do not support this claim.[12] DOE clearly states that "the U.S. is a net exporter of metallurgical coal" and presents a figure showing that metallurgical coal production in the U.S. has remained relatively stable from 2007 through 2024.[13] According to data in the Energy Information Administration ("EIA") Coal Data Browser, the U.S. has been exporting between 40 and more than 60 million tons of metallurgical coal annually in the past decade, while importing less than 1.7 million tons annually over that same period.[14] These are not the characteristics of a material that has a high risk of a supply chain disruption, or one that is facing barriers to production. Anthracite is similarly a net exported material.[15] Based on the data presented in DOE's analysis, metallurgical coal (inclusive of anthracite) does not meet the supply constraint criteria and thus falls outside of the statutory definition of a "critical material."

iii. *DOE's own language in the analysis reveals that metallurgical coal does not fall within the Energy Policy Act definition.*

On the second page of their eight page analysis, DOE admits that "existing definitions under the Energy Policy Act of 2020 seem inadequate to the task of recognizing the critical need for metallurgical coal," and later that "the definition of critical materials contained in the Act requires additional considerations."[16] In other words, metallurgical coal does not meet the statutory definition under the Energy Policy Act, but it is still critical. Certainly, metallurgical coal and anthracite currently play important (though perhaps diminishingly so) roles in steel manufacturing. We do not reject this. However, the point of the statutory definition is to identify those materials where *current* supply chains pose unique challenges and thus require unique solutions. In addressing the supply chain disruption portion of the statutory definition, DOE claims that "The second element of the definition is satisfied because the United States has set a strategic policy goal to increase domestic steel production, which will require greater reliance on metallurgical coal in the near term."[17] But this is not how the definition works. A "strategic policy goal" cannot create supply risk where it does not exist and allowing this justification to

[10] The Mining and Mineral Policy Act of 1970, 30 U.S. Code § 21a ("For the purpose of this Act "minerals" shall include all minerals and mineral fuels including oil, gas, coal, oil shale and uranium.").
[11] RFI at 10-11.
[12] DOE Analysis of Metallurgical Coal at 8.
[13] I*d.* at 6; Figure 3.
[14] EIA Coal Data Browser, https://www.eia.gov/coal/data/browser/.
[15] DOE Analysis of Metallurgical Coal at 6.
[16] *Id.* at 2, 3.
[17] *Id.* at 2.

stand would set a dangerous precedent for materials to be designated as "critical" solely because of the policy interests of the White House. Ultimately, the goal of critical material policy should be to remove critical materials from the list—not designate certain commodities of current political interest for special treatment in perpetuity.

iv. *DOE does not clearly define the properties that determine whether coal is "metallurgical coal" or not.*

In addition, the analysis does not clearly delineate which types of coal are considered to be "metallurgical coal" for the purposes of the critical materials list. The analysis notes that metallurgical coal has "certain properties" that enable coke production, which are said to be defined by the "proportion of volatile matter inherent in the material."[18] However, DOE never specifies in the analysis what proportion of volatile matter is required for coal to be "metallurgical coal" for the purposes of the critical materials list. The analysis additionally notes that metallurgical coal is "segmented into grades designated by volatility and rank" and lists several grades, but never provides any specific criteria for each grade. As others have noted, the physical differences that are used to categorize different types of coal "are not rigid categories: they lie on a spectrum, with some overlaps."[19] This is precisely why metallurgical coal does not meet the "non-fuel" definition: Pulverized Coal Injection ("PCI") coal and semi-soft, for instance, can be used in the steelmaking process but can also be used for traditional thermal purposes. The lack of any clear definitions for what counts as metallurgical coal could lead to the unintentional – or willful – classification of some thermal coal as "critical" regardless of whether it will be used in the steelmaking process or not. An "I know it when I see it" approach to determining whether a certain unit of coal is metallurgical coal for the purposes of the critical materials list is a recipe for waste, fraud, and abuse.

B. Emerging Trends in Steel Manufacturing Technology and Steel Recycling will Reduce, Not Increase, Demand for Metallurgical Coal in the U.S.

While DOE's analysis rests heavily on the prediction that metallurgical coal demand will grow substantially in order to achieve "steel dominance," the current trends of the industry suggest that U.S. demand for metallurgical coal will decrease even if domestic steel manufacturing increases.

i. A large and growing share of U.S. steel production relies on existing technologies that require minimal coal inputs.

As noted by the DOE, steel is primarily produced by one of two means: Blast Furnace and Base Oxygen Furnace ("BF/BOF") or Electric Arc Furnace ("EAF"). Estimates indicate that 70-72% of U.S. steel production is currently produced with EAFs,[20,21] a figure that is projected

---

[18] *Id.* at 1.
[19] Wright, M. SteelWatch, *Met coal: what it is and why it is a climate risk* (2025), https://steelwatch.org/wp-content/uploads/2025/04/2504_MetCoal-1.pdf.
[20] Steel Manufacturers Association, *Steel is the New Green*, https://steelnet.org/sustainability/.
[21] USGS, MINERAL COMMODITY SUMMARIES 2025 94-95 (March 3, 2025), available at https://doi.org/10.3133/mcs2025.

to rise to 75% by 2030[22] and 90% by 2040.[23] While EAFs require some anthracite or coke for slag foaming, the coal requirements associated with this process are far lower than the coal required for BF/BOF steel production. According to a 2025 international review of the steel industry, BF/BOF steel production typically requires 0.5-0.6 tons of coking coal per ton of steel produced and EAF steel production only requires 0.01 tons of coal additives per ton of steel produced.[24] Therefore, as U.S. steel production increasingly relies on EAF rather than BF/BOF, reliance on metallurgical coal is likely to decline.

ii. New steel manufacturing technologies may further diminish the role of coal in U.S. steel production.

While most existing EAF facilities support steel recycling rather than primary steel production, the rise of direct reduced iron (DRI) facilities could support the production of primary steel with minimal coal inputs, offering DRI/EAF steel as an alternative to BF/BOF steel. DRI, which can rely on natural gas or hydrogen fuel for coal-free iron reduction, is currently responsible for 6% of U.S. steel production - as well as 6% of U.S. metallics demand, a figure that is projected to rise to 13% by 2050.[25] Another alternative to the BF/BOF process is molten oxide electrolysis ("MOE"), which requires no coal inputs and is currently being demonstrated by the U.S.-based Boston Metal.[26] As U.S. steel producers continue to invest in these advanced technologies, rather than spending hundreds of millions of dollars to extend the lifetimes of aging blast furnaces,[27] the role of coal in domestic steel production can be expected to decline.

iii. Increases in steel recycling will further reduce the need for coal in steel manufacturing.

Finally, both supply of recyclable steel and demand for recycled steel is projected to increase in the U.S. Studies already indicate that high-quality recycled steel, produced using

---

[22] Chavan, S., Persistence Market Research, *U.S. Hot Briquetted Iron Market Size, Share, and Growth Forecast from 2025 - 2032* (February, 2025), https://www.persistencemarketresearch.com/market-research/us-hot-briquetted-iron-market.asp.

[23] Steel Manufacturers Association, *New Study: Enough Scrap to Meet Rising U.S. Demand for Recycled Steel* (February, 2025), https://steelnet.org/new-study-enough-scrap-to-meet-rising-u-s-demand-for-recycled-steel/.

[24] Hasanbeigi, A., Global Efficiency Intelligence, *Steel and Coal: Global, country-, and company-level analysis of coal consumption in the steel industry* at 12, 17 (2025), https://www.globalefficiencyintel.com/steel-and-coal. *Note*: DOE claims in their analysis that 0.86 tons of metallurgical coal are necessary to produce a ton of steel, and cite to the Economic Impact Analysis for the Final National Emission Standards for Hazardous Air Pollutants for Coke Ovens, where page 1-9 asserts that "an integrated iron and steel (II&S) manufacturing facility requires about 630 kg of coke per ton of metric steel produced." DOE may have overestimated this statistic, which further suggests that metallurgical coal demand is likely overestimated in the DOE analysis.

[25] Wu, M., Chaudhary, I., & Vora, M., Wood Mackenzie, *Metalmorphosis: How decarbonisation is transforming the iron and steel industry* (October, 2023), https://www.woodmac.com/horizons/metalmorphosis-how-decarbonisation-is-transforming-the-iron-and-steel-industry/.

[26] Snook, J., Thorne, S., Hardison, R., Homicki, C., & Seidenfeld, J., Clean Energy Buyers Association, *Powering United States Primary Steel Decarbonization* (November, 2024), https://cebuyers.org/wp-content/uploads/2024/11/CEBA_Powering-United-States-Primary-Steel-Decarbonization_November-2024.pdf.

[27] Masterson, M., Ramirez, K., Ha, T., & Gamage, C., Rocky Mountain Institute, *Reline or Revitalize: The Narrowing Window to Modernize the US Steel Industry* (January, 2025), https://rmi.org/reline-or-revitalize-the-narrowing-window-to-modernize-the-us-steel-industry/.

EAFs with minimal coal inputs, could adequately meet almost all of U.S. steel needs.[28] Improvements in recycling logistics, collection, and sorting can further support the availability of recyclable steel, while the rising prevalence of EAFs supports greater capacity for steel recycling. On the demand side, car manufacturers are making commitments to increase the use of recycled steel in their vehicles, mitigating the need for primary steel production.[29]

These trends further reveal the flaws in DOE's analysis. The future of U.S. steel manufacturing is one that relies little if at all on metallurgical coal. Metallurgical coal is not a supply constrained resource in the U.S. today and is not likely to be in the future given these trends, and does not meet the definition of a "critical material."

C. *Inappropriately Designating Metallurgical Coal as a "Critical Material" will Exacerbate Environmental and Community Harms.*

Coal mining contaminates groundwater, produces toxic dust, and recently has been shown to produce more methane globally than oil or gas operations.[30] The toxic waste streams produced by coal mining have been harming communities across the U.S. for centuries. Each year, new research shows the co-location of poor health outcomes and of coal mining activity, particularly in Appalachia, where the vast majority of metallurgical coal resources in the U.S. are located.[31] If DOE continues to inappropriately identify metallurgical coal as a "critical material," such a federal designation may stifle innovation in steel production and force communities to pay the price for expanded coal operations.

Respectfully Submitted,

Earthjustice	Friends of the Earth
Allegheny-Blue Ridge Alliance	Kentucky Resources Council, Inc.
Appalachian Voices	Montana Environmental Information Center
Center for Biological Diversity	Public Citizen
Citizens Coal Council	Sierra Club
Earthworks	West Viriginia Highlands Conservancy

[28] Steel Manufacturers Association, *New Study: Enough Scrap to Meet Rising U.S. Demand for Recycled Steel* (February, 2025), https://steelnet.org/new-study-enough-scrap-to-meet-rising-u-s-demand-for-recycled-steel/.
[29] Bui, A., Isenstadt, A., Zhou, Y., Bieker, G., & Negri, M., The International Council on Clean Transportation, *Technologies to reduce greenhouse gas emissions from automotive steel in the United States and the European Union* at 9 (July, 2024), https://theicct.org/wp-content/uploads/2024/07/ID-158-%E2%80%93-Green-steel_final.pdf.
[30] Ryan Driskell Tate, *Bigger than Oil or Gas? Sizing Up Coal Mine Methane*, Global Energy Monitor (Mar. 2022), https://globalenergymonitor.org/wp-content/uploads/2022/03/GEM_CCM2022_r4.pdf.
[31] Appalachian Voices, Human Health Impacts, https://appvoices.org/end-mountaintop-removal/mtr101/health-impacts/.