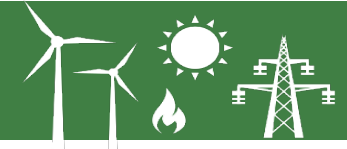


# Task Force on Just Transition

31 July 2024

ENERGY



## Coal mining as a multi-purpose platform serving the needs of the emerging clean energy economies

Raymond C. Pilcher, Chair  
Group of Experts on Coal Mine Methane and Just Transition



**ENERGY****UNECE offers a new approach to coal**

- Considering coal solely as a source of fuel ignores alternate value propositions and opportunities for creating new business models.
- Unrecognized value for some coal deposits lies in the potential to refine and utilize the carbon and other materials as higher value resources
- The proposed approach creates new opportunities for economic development
  - By preserving/creating jobs, it will facilitate the transition by mitigating the exposure of communities and regions in transition to cultural and social shocks
  - By mitigating the risk of stranded coal assets, it gives financial institutions an opportunity to preserve them, thus freeing significant resources for investments needed in infrastructural projects, which not only depend on the feedstock provided by coal companies, but also make the business case for coal mines continued existence as a crucial element of the new green economy

## Finding new value in coal mines should be attractive to investors:

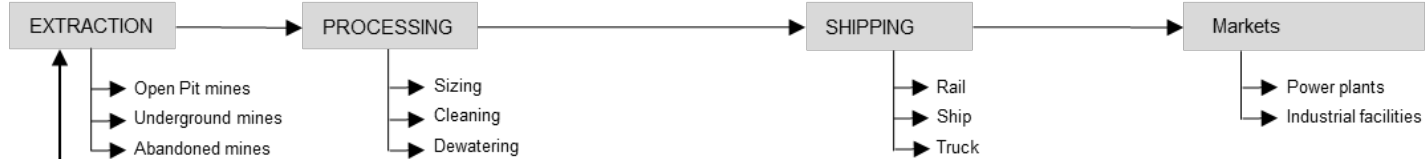
- The coal mining sector was valued at \$1.27 trillion USD in 2011
- In 2020 the value of the sector was approximately \$500 billion USD
- In 2023 the value was approximately \$600 billion USD
- The erosion of value is due to the pressure on the electric power industry to move from coal to lower carbon intensity fuels, the favorable pricing of natural gas, and lower cost renewables.
- New business models can be developed for active and idled mines—potential for re-mining mine tailings should also be considered

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## Some coal deposits have additional value which has not been recognized:

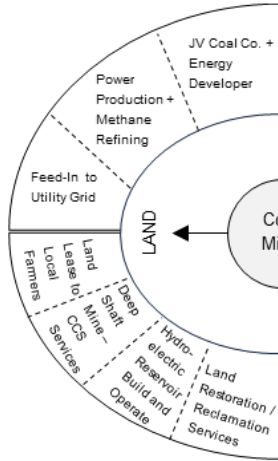
- Recent work has shown that rare earth elements occur in trace amounts in many coal deposits and in the enveloping strata which is treated as waste
- Acid mine drainage in some coal deposits mined in West Virginia have very high levels of REEs and other valuable metals. A Wyoming metcoal producer claims that his company has discovered REEs worth \$37 billion USD in tailings and in the unmined coal deposit
- Similar reports of trace element occurrences come from work on coal deposits in the western US, India and China.
- Other critical raw materials have been found in minable coal deposits, but our knowledge of these occurrences is still being acquired—most coal exploration programs are not designed to test for other metals unless they are likely to be environmental pollutants.

CONVENTIONAL MINING FOR COAL-AS-FUEL



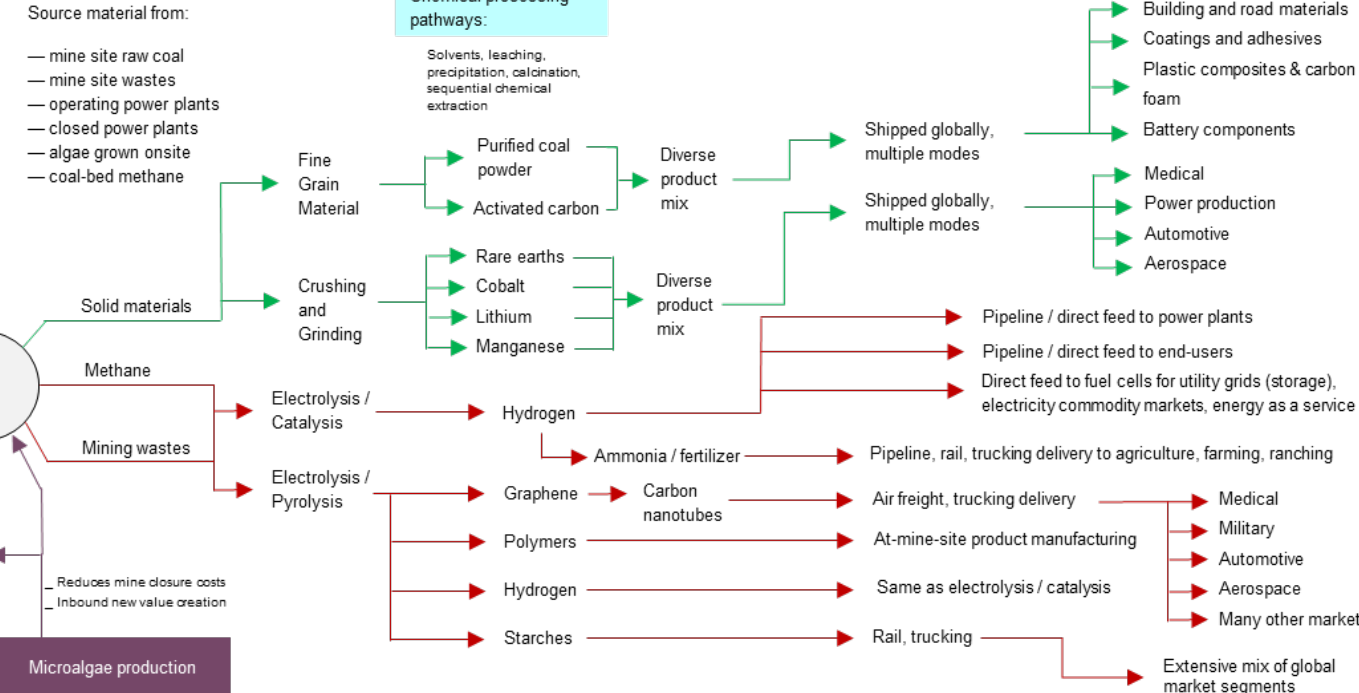
ASSET BASED VALUE CREATION

New revenue from clean energy projects at mines sites



New revenue from services leveraging land assets at mine sites

MATERIALS PROCESSING PRIMARY EXAMPLES: "REFINING" PRODUCTION SHIPPING + Example Markets and Services



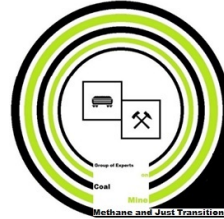
COAL AS A MULTI-RESOURCE PLATFORM

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## **The UNECE recognizes that a shift is needed to realize a just and equitable future for all**

- Research on deposits that are actively being mined should become a focus for re-evaluation of alternate potential uses of the coal as a source of carbon for graphite, graphene, carbon nano tubes and other high value materials
- Coal deposits and mine wastes should be analyzed for valuable metals, REEs and other critical raw materials.
- Fly ash at mine mouth power plants and at other locations should be tested for valuable and extractable materials.
- Some mine sites may have abundant methane that could be used rather than vented





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*The views expressed in this presentation are my own and do not necessarily reflect those of the United Nations.*