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| **TITLE:** | Systems Analyst |
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| **DEPARTMENT:** | U.S. Department of Energy/National Energy Technology Laboratory (NETL) |
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| **NETL CONTACT:** | Thomas Tarka, Thomas.Tarka@netl.doe.gov |
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| **DUTY LOCATION:** | Pittsburgh, PA; Morgantown, WV; Albany, OR |

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| **ACADEMIC LEVEL:** |  | PhD |  | MS | **X** | BS |  | Undergrad |  | Faculty |

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| **POSITION**  **INFORMATION:** | 1-year appointment; full time (40 hours per week) with the possibility of extension |
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| **CLOSING DATE:** | 4/30/19 |
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| **WHO MAY BE**  **CONSIDERED:** | United States Citizens |

**SUMMARY:**

Coal and coal by-products are a promising and yet unexploited domestic source of rare earth elements (REE). The National Energy Technology Laboratory’s (NETL) Research and Innovation Center (RIC) is conducting research into the extraction and concentration of coal-related REE reserves with a goal of producing REE from coal at a market competitive price and with a minimal environmental footprint.

NETL researchers have identified several promising pathways for extracting and producing rare earth elements (REE) from coal or coal related materials (ash, acid mine drainage, under-clays, etc.). The next step towards maturing these pathways is to perform a technological and economic screening of how the technology would perform in an industrial facility.

This opportunity is for an engineer or scientist to collaborate with NETL researchers to design industrial facilities which would leverage the NETL-developed technologies to produce rare earth elements from the coal related feedstocks. Once designed, NETL engineers will mentor the candidate to evaluate the performance of the process and provide REE production cost estimtes based on process inputs, energy requirements, and products produced. The process design is expected to be refined as more is learned about the process inputs and outputs, allowing the candidate to learn more about the REE extraction process, industrial process design, process optimization techniques, and market evaluation strategies. The candidate will also collaborate with NETL engineers to design and perform sensitivity analyses to determine key process variables and performance metrics.

During the process design activity, the candidate will have the opportunity to collaborate with NETL separations researchers from a variety of backgrounds – ranging from geology to chemical engineering – as they learn more about the nuaces of each separations process. This will inform the separations research, allowing NETL researchers and management to better understand how to optimize the separations processes and to identify research targets to better improve process performance. The candidate will have the opportunity to be creative and be a part of a motivated team, while learning about energy, process design and optimization, and mineral development processes.

**HOW TO APPLY:**

Applicants should apply through the Oak Ridge Institute for Science and Education (ORISE) program. The ORISE program provides opportunities for undergraduate students, recent graduates, graduate students, postdoctoral researchers, and faculty researchers to apply classroom knowledge in a real-world setting to learn about NETL’s core mission areas.

* Interested applicants should complete the online application at <http://www.orau.gov/netl/>. For questions or issues, please email NETLInfo@orau.org.
* In the online application, **list** **Thomas Tarka as your requested mentor.** This will associate your application with this research opportunity. Please send a CV to [Thomas.Tarka@netl.doe.gov](mailto:Thomas.Tarka@netl.doe.gov).
* If you have additional questions, please contact Patricia Adkins-Coliane, [Patricia.adkins-coliane@netl.doe.gov](mailto:Patricia.adkins-coliane@netl.doe.gov), who is the NETL Graduate Education Program Manager.

The participant(s) will be assigned to the program solely for the educational benefit it provides. The assigned project should not include activities that are reserved for federal employees nor should it require a participant to perform inherently governmental functions such as: supervise or mentor federal employees or federal contractor staff, hire or fire anyone; have budget, program management, or signature authority; carry an official job title; or function in any way as a representative of the federal government.