

# SPRING 2024 SEMINAR SERIES

## energyXchange

a seminar series  
on energy science  
and technology



### Thandazile Moyo

*Assistant Professor of  
Energy and Mineral  
Engineering  
John and Willie Leone  
Family Department  
of Energy and Mineral  
Engineering*

### Integrating Sustainability in Minerals and Energy Resource Extraction Education

It is recognized that the transition to clean energy will require significant volumes of minerals, which in the immediate future will be supplied through primary mining. Future energy scenarios going into the next few decades reflect an energy mix that remains blended, with renewables growing in dominance but fossil fuels remaining a key contributor. Extraction, particularly mining, suffers a poor public image and is seen as dirty, non-innovative, and outdated. However, the role of extraction in sustainability has never been stronger, but challenges remain in integrating sustainability and responsible extraction into the education curriculum. Broadly speaking, education for sustainable development (ESD) provides the knowledge, skills, values, and agency to address interconnected global challenges including climate change, loss of biodiversity, unsustainable use of resources, inequality, etc. In this seminar, Moyo will talk about opportunities and experiences in teaching sustainability in mineral and energy resource extraction, and why sustainability literacy is a knowledge gap for the future workforce.

**APRIL 18**

**4 p.m.\* – 5 p.m.**

Coffee • Snacks • Connections

**EMS ENERGY INSTITUTE  
C213 Coal Utilization  
Laboratory**



**EMS Energy Institute**

\* Parking is available at the Institute at 4 p.m.

**[www.energy.psu.edu](http://www.energy.psu.edu)**



**PennState**  
College of Earth  
and Mineral Sciences

Earth and Mineral Sciences  
**Energy Institute**

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**FEBRUARY 8**

### Eugene Morgan

*Associate Head for Undergraduate Education  
Undergraduate Program Chair of Energy Engineering  
Associate Teaching Professor, John and Willie Leone Family  
Department of Energy and Mineral Engineering*  
CO<sub>2</sub>-SMART: A New Industry-University  
Collaborative Research Center for CO<sub>2</sub> Storage  
Modeling, Monitoring, Analytics, and Risk  
Reduction Technologies

**MARCH 14**

### Erica Smithwick

*Director of the Earth and Environmental Systems Institute  
and Distinguished Professor of Geography*  
Penn State's Climate Consortium: Partnerships for  
People and the Planet

**MARCH 28**

### Sarma Pisupati

*Professor of Energy and Mineral Engineering, Chemical  
Engineering, and Director of the Center for Critical Minerals  
(C<sup>2</sup>M)*  
Mineral Security Challenges in Meeting the Goal of  
Net-Zero Carbon Emissions by 2050

**APRIL 18**

### Thandazile Moyo

*Assistant Professor of Energy and Mineral Engineering  
John and Willie Leone Family Department of Energy and  
Mineral Engineering*  
Integrating Sustainability in Minerals and Energy  
Resource Extraction Education

**MAY 9**

### Joshua Robinson

*Associate Dean for Graduate Education and Research  
(Acting)*  
Silicon Carbide: The Critical Semiconductor for the  
Energy Transition

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