

NEES+NSS *Penn State*

National Extension Energy Summit

National Sustainability Summit 2022

May 15-18, 2021; Penn Stater Hotel and Conference Center, State College PA

Energy and Sustainability Tours

Wednesday, 18 May

All tours depart from the lobby of the Penn Stater Hotel (lower level), pictured above.

Forests and Wood Energy tour (8:30 am departure)

- 09:00 AM Ag Progress Days Site: Shrub willow and drones
- 09:45 AM Ag Progress Days Site: Forest management
- 10:45 AM Shaver's Creek Nature Center: forest farming, NTFPs, and environmental education
- 12:00 PM Lunch at Greenwood Furnace State Park
- 01:00 PM Metzler Forest Products: wood processing and biochar
- 02:30 PM return to Penn Stater

Land and Water tour (9:00 am departure)

- 09:15 AM Spring Creek Stream Buffer site: Riparian land management and energy crops
- 10:00 AM Living Filter: Wastewater management and biomass production
- 11:15 AM Coaldale Mine Site: Disturbed land reclamation
- 12:15 PM Lunch at Black Moshannon state park
- 02:00 PM Shale Acres Farm: Switchgrass production and high efficiency housing
- 03:30 PM return to Penn Stater

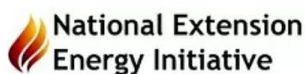
Waste Utilization and Energy tour (9:10 am departure)

- 09:15 AM Penn State Dairy Farm: PSU Anaerobic Digester
- 10:30 AM Penn State Student Farm: Community-Oriented Ag Initiatives and Biomass Demo Plots
- 12:00 PM Lunch at PSU Arboretum
- 01:30 PM Penn State Composting Facility: Organic Waste Recycling
- 03:00 PM University Area Joint Authority Solar Array
- 04:15 PM return to Penn Stater

Campus Sustainability, Arts & Culture tour (10:00 am departure)

- 10:15 AM Arboretum tour and individual exploration
- 11:30 AM Lunch (and ice cream!) at Penn State Berkey Creamery
- 01:00 PM HUB-Robeson Student Galleries guided exhibitions tour
- 02:00 PM Group and individual time to explore the HUB-Robeson Galleries, Student Union, and Bookstore
- 03:00 PM return to Penn Stater

For full tour descriptions, and to register, visit: <https://www.nationalextensionsummits.com/>



National Network for
SUSTAINABLE LIVING EDUCATION



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National Extension Energy Summit

National Sustainability Summit 2022

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Energy and Sustainability Tours

Four outstanding tours are planned for the NEES/NSS, to be held on Wednesday, May 18th. The tours highlight local examples of energy and sustainability activities related to extension. All tours will depart from and return to the Penn Stater Hotel and Conference Center. The cost of the tour is included with full conference registration.

Tour #1: Forests and Wood Energy Host: Sarah Wurzbacher, Penn State Extension

The Growing and Using Wood Energy Tour will depart the Penn Stater at 8:30 AM. Our first stop will be at an agricultural demonstration site called Ag Progress Days where we will explore two woody biomass feedstock systems. First, we'll see and discuss opportunities and struggles in a short-rotation coppice system involving a plantation of shrub willow. A drone flight demonstration will accompany this presentation, introducing new options and approaches for crop health monitoring in these systems. The second stop at the Ag Progress Days site is the woodlot demonstration area, where forest management options yielding low-use wood suitable for bioenergy markets will be discussed.

After departing the Ag Progress Days site, we'll make our way to Shaver's Creek Nature Center. Continuing a discussion of multiple-use forest management, this tour stop will focus on opportunities around forest farming and non-timber forest products. Additionally, we may discuss common approaches between extension mission and Shaver's Creek's public-facing work to engage visitors with nature.

Next is a picnic lunch at Greenwood Furnace State Park, a former industrial community centered around active iron furnaces (fueled by wood energy) between 1834 to 1904. After lunch, we'll visit Metzler Forest Products, a company that conducts timber harvesting activities, land clearing activities, forest products transportation, contract chipping services, mulch production, and firewood supply. Metzler's portfolio of work features applications for lower-value wood products, including bioenergy markets. New work on biochar production and applications may also be discussed.

After exploring production, transport, and processing at other tours tops, our final stop shows one "end of the line" scenario for wood energy – a commercial-scale wood energy system at Penns Valley Area School District. We will speak with the Physical Plant Director about the shift to a wood system, logistics, and economics.

09:00 AM	Ag Progress Days Site: Shrub willow and drones
09:45 AM	Ag Progress Days Site: Forest management
10:45 AM	Shaver's Creek Nature Center: forest farming, NTFPs, and environmental education
12:00 PM	Lunch at Greenwood Furnace State Park
01:00 PM	Metzler Forest Products: wood processing and biochar
02:30 PM	return to Penn Stater

For full tour descriptions, and to register, visit: <https://www.nationalextensionsummits.com/>

Energy and Sustainability Tours, cont.

Tour #2: Waste Utilization and Energy Host: Ed Johnstonbaugh, Penn State Extension

The Waste to Energy Tour will depart the Penn Stater at 9:30 AM. Our first stop will be to take a tour of the new Biodigester located at the dairy operations facilities near campus. The digester built with an operating volume of 360,000 gallons is designed for a daily inflow of 11,500 gallons. The methane production is used to maintain temperature within the digester tank and to fuel a generator that offsets the purchase of electricity from the grid.

The next stop on the tour will be a visit to Penn State's composting facility located a short distance from the first stop. Penn State has a long tradition of collect unused and waste organic materials from main campus operations to supply its composting operation. Located on a multiacre site the composting facility takes in the organic material and manages the composting process by turning the material on a frequent basis allowing microbial breakdown of matter to take place. Once completed the much of the compost gets a return trip to campus where it starts its new life as mulch in and around the many plantings gardens that span University Park.

Following the visit at the compost facilities tour participant will make a stop at the arboretum that abuts the campus. There tour members can enjoy a quiet lunch with the option to walk the grounds of the arboretum and see the variety of trees and plants native to Pennsylvania that make up the facility.

After the lunchbreak we will load up and travel to the nearby student farm. Located on the north end of campus the Student Farm, established in 2016, is a living laboratory with many facets. Planted, maintained and harvest by a mix of club members, students and volunteers the farm grows a wide variety of vegetables that benefit the health and well being of the community at large. The farm since being established has grown to be a great place to learn by using your hands while nurturing you mind and spirit.

Our last stop of the day will be to look over a solar array that provides electricity to the campus but utilizes land typical of the rolling hills of Pennsylvania. Recognizing the challenge between growing crops to feed a hungry populace and the need to clean renewable energy the solar PV project occupies land not suited for row crop production. This project demonstrates the use of land of low value for farming can still be engineered to produce clean energy ready for the grid.

09:15 AM	Penn State Dairy Farm: PSU Anaerobic Digester
10:30 AM	Penn State Student Farm: Community-Oriented Ag Initiatives and Biomass Demo Plots
12:00 PM	Lunch at PSU Arboretum
01:30 PM	Penn State Composting Facility: Organic Waste Recycling
03:00 PM	University Area Joint Authority Solar Array
04:15 PM	return to Penn Stater

Energy and Sustainability Tours, cont.

Tour #3: Land and Water

**Hosts: Dan Ciolkosz, Penn State Department of Ag & Biological Engineering
Mike Jacobson, Penn State Department of Ecosystem Science & Management**

The land and water tour will feature several stops that showcase innovative and interesting activities related to water quality and land use in the region. The stops require walking over uneven ground, and expect some dewy conditions in the morning even if the weather is dry. After departing the Penn Stater promptly at 9am, we will make our first stop at a riparian buffer rehabilitation site where the near-stream zone has been planted in a designed buffer that is intended to improve water quality and enhance ecosystem diversity – all part of the state's ongoing efforts to meet water quality targets in the Chesapeake Bay region. This particular buffer site was established as a partnership effort of Penn State and the Clearwater Conservancy.

Our next stop will be at the “living filter”, a unique site where all of the university's wastewater is land applied on a series of spray fields. Nearly 2 billion litres of water per year are applied to the land and percolate down to the water table, benefitting from soil-mediated filtration and bioremediation along the way. In operation since 1983, this 210 ha site has been the subject of many research studies, including an active effort to examine the potential for short rotation woody crop (shrub willow) production.

A beautiful drive then awaits us, as we pass out of the ridge and valley region of the state and onto the allegheny plateau – a heavily forested region rich in mineral resources. Strip mining of coal has been a widespread activity in this area, and we will visit a reclaimed mine site where work has been underway to redevelop a thriving ecosystem to this disturbed land. Eric Oliver from the PA Department of Environmental Protection will be joining us, and will explain how they design and develop plans for improving degraded lands such as this. One of the features of the site is a 1-acre living lab of disease resistant american chestnut trees, where their blight resistance and adaptability to degraded land is being tested.

By this time, we will probably be ready for lunch, and so we will stop at nearby Black Moshannon State Park to enjoy a picnic lunch amidst the pleasant surroundings. The name “Black” refers to the dark color of the lake and stream water, caused by high levels of tannins from nearby bogs. “Moshannon” is the name originally used for either Moose or Elk (there is some disagreement about that) by local indian tribes. The more energetic among us may find time for a quick hike.

Once fortified with our lunch, we will travel down to Steele Hollow, site of Shale Acres Farm. The farm is tucked away in a scenic, narrow valley, and features switchgrass production on marginal land, forest restoration and development activities, and a super high efficiency Structural Insulated Panel (SIP) passive solar home. Farm owners Andy and Chris Bater will be on hand to tell the unique story of how their vision for sustainable land management and renewables has led to this unique operation.

Following that, we will return to the Penn Stater Hotel and Conference Center, full of information and good cheer.

09:15 AM	Spring Creek Stream Buffer site: Riparian land management and energy crops
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11:15 AM	Coaldale Mine Site: Disturbed land reclamation
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02:00 PM	Shale Acres Farm: Switchgrass production and high efficiency housing
03:30 PM	return to Penn Stater

Energy and Sustainability Tours, cont.

Tour #4: Campus Sustainability, Arts & Culture

Hosts: Jennison Kipp, University of Florida Extension and Sarah Kipp, Galleries Coordinator, Penn State HUB-Robeson Center's Student Union Building

Join Exhibitions Coordinator Sarah Kipp for a campus arts and sustainability tour beginning at The Arboretum at Penn State, where nature, science, and beauty meet (<https://arboretum.psu.edu/>), stopping for lunch at the iconic Berkey Creamery where "Spring Flavors" will be in bloom (<https://creamery.psu.edu/>), and culminating with a guided tour of the the HUB-Robeson Galleries.

Located in University Park's HUB-Robeson Center's Student Union Building, HUB-Robeson Galleries partner with students and contemporary artists to produce gallery exhibitions, public projects, artist residencies, educational programs and cultural events.

Stops along the Galleries tour will include visits to *Happy Valley Animation Festival* in HUB Gallery and *Scatter Terrain* in Art Alley, featuring 25 artists who present pockets of "terrain" – peculiar landscapes, architectural gestures, intimate domestic corners – as a metaphorical means of escape from the pandemic and connection to those who are far away. We will also visit three giant smoke-painted murals by Rosemarie Fiore, *Something Means Something Else* – a permanently installed dynamic work of art by Tamara Gayer in the Center for Sexual and Gender Diversity, and Katherine Tzu Lann Mann's breath-taking multi-media mural, *Small Planet*, which is inspired by Native Pennsylvanian flora. Visit HUB-Robeson Galleries Website for more information: <https://studentaffairs.psu.edu/hub/art-galleries>

10:15 AM	Arboretum tour and individual exploration
11:30 AM	Lunch (and ice cream!) at Penn State Berkey Creamery
01:00 PM	HUB-Robeson Student Galleries guided exhibitions tour
02:00 PM	Free time to explore the HUB-Robeson Galleries, Student Union, and Penn State Bookstore
03:00 PM	return to Penn Stater

