

<b>Project name</b>	<b>Timeline</b>	<b>Summary</b>
Methane Emissions Opportunities and Challenges for the Indian Energy Sector	2024	As India's economy expands, it will continue to experience a rapid growth in energy demand. An increase in demand that will be met primarily by burning of fossil fuels that are major sources of methane emissions. I am currently working to develop a broad coalition to understand the opportunities and challenges for specific emissions reduction strategies in the Indian energy sector.
Surveying Opportunities for Coal Mine Methane Mitigation in South Africa	2024	South Africa is a major source of coal mine methane emissions. I am currently working with civil society and academic partners to survey the opportunities and challenges for implementing specific mitigation strategies.
Opportunities for asset repurposing along the coal value chain	2024	I am currently working on a multidisciplinary team of researchers to examine opportunities to repurpose coal assets in India, South Africa, and the United States to spur sustainable economic development.
<a href="#">An Economic Restructuring Plan for the Town of Richlands, Virginia</a>	2023	This Economic Restructuring Plan evaluates the current economic climate in Richlands, explores local market data on the surrounding area, and outlines strategies that will help Richlands and its downtown create a stronger business environment, target new investment, and position itself as a destination within the greater region.
Snowshoe Resort Community District Strategic Plan	2022-2023	The Snowshoe Resort Community District is West Virginia's first Resort Area District. In 2022, I spearheaded a strategic planning process to identify opportunities for economic development and local revenue generation.
<a href="#">Preparing for Growth: Readyng the Elk River Trail Towns for the Future</a>	2022 and 2023	Recreation and tourism investments in Central West Virginia have centered around the establishment of the Elk River Trail System. In 2022 and 2023, I worked with four communities along the Elk River Trail to develop intentional strategies to accommodate an increased number of visitors and maximize the economic development power of the Elk River Trail System. My team identified strategies that would cost just over \$4 million, but that could result in \$250 million in new sales activity over the next 15 years in four Elk River Trail Towns.
<a href="#">Reclaiming Appalachia Coalition</a>	2017-2023	In 2017, I helped found the Reclaiming Appalachia Coalition, a collaborative focused on spurring innovative ecological restoration and economic development on former mine sites in Ohio, West Virginia, and Virginia. My work with the Coalition helped secure tens of millions of dollars for projects that serve as critical stepping stones in the region's economic transition.
<a href="#">GOT FIVE ON IT: Economic Impacts and Observations</a>	2022	The Abandoned Mine Land Economic Revitalization (AMLER) Program was established in 2016 to return abandoned mine lands to productive use through economic and community

<a href="#"><u>of the Abandoned Mine Land Economic Revitalization Program Five Years In</u></a>		development. In 2022, working with a multidisciplinary team of researchers, I conducted an economic impact analysis of the program to-date.
<a href="#"><u>Advancing Budding Projects: A Guide and Toolkit for Estimating the Economic Benefits of Sustainable Development Ideas in Southwestern Pennsylvania</u></a>	2020	Across Appalachia, the Rust Belt, and beyond, people are coming together to reimagine a future in which their communities shift away from fossil fuel-based economies in favor of more resilient, sustainable industries. Four organizations in Southwestern Pennsylvania that are affiliated with the greater ReImagine Appalachia Initiative have developed nascent ideas for sustainable development in their communities. To help propel these ideas into fully fundable concepts, I was contracted to develop a guide and toolkit for estimating the economic benefits of sustainable development projects.
<a href="#"><u>Get it while it's hot! Viable downtown redevelopment options for Fairmont, West Virginia</u></a>	2019	As part of a U.S. Environmental Protection Agency (EPA) Community Wide Brownfields Assessment Grant, the City of Fairmont contracted Downstream Strategies to perform a market analysis for the redevelopment of the historic former YMCA and Fairmont Firehouse. This report explores the market feasibility of market-rate housing, office and coworking space, a restaurant and/or bar, and other creative reuse options as viable end uses. It also includes specific recommendations and an Implementation Guide to assist City administrators, developers, and other stakeholders in capitalizing on the market opportunities in the Friendly City
<a href="#"><u>Charting Restoration: Seven Years after Deepwater Horizon</u></a>	2018	The Deepwater Horizon oil spill focused the attention of the Gulf states and the nation on the ongoing problems in the Gulf of Mexico. In the years since, multiple restoration plans have been developed with the goal of guiding restoration and conservation decisions in the Gulf of Mexico and the lands along its coastline. In this project, I analyzed those plans, mapped restoration priorities across the Gulf, and then compared the findings to the BP-related money that has been distributed to date.
Prospects for large-scale solar on degraded land in West Virginia	2017	As solar markets have exploded and the new low-carbon economy has improved its footing, West Virginia's economy has crumbled. West Virginia's miners and the once-prosperous companies that employ them have fallen on hard times. West Virginia's small towns and rural communities are dotted with degraded lands, including former mines, hazardous waste sites, landfills, Superfund sites, and Brownfield sites. This project examined the opportunities for

		large-scale solar development on these sites and explored the environmental and economic impacts of this type of development in the Mountain State.
<a href="#"><u>Capturing the Sun's Rays: An Economic Impact Assessment of Solar Development in Southwest Virginia</u></a>	2017	In Southwest Virginia, a group of nonprofit and community action agencies, colleges, state agencies, planning district commissions, and other interested citizens and businesses seeking to develop a solar energy industry cluster in the seven coalfield counties of Southwest Virginia. Development of some or all aspects of the solar industry value-chain—from component manufacturing and sales to engineering and installation—will not only grow the local economy, but also provide new businesses with abundant, redundant, and renewable energy. Understanding this potential economic boon provides lawmakers and energy industry officials in the region a powerful leverage point for scaling up a diverse renewable energy sector.
<a href="#"><u>Opportunities for Reducing Commercial and Residential Greenhouse Gas Emissions in Morgantown, West Virginia</u></a>	2016	This discussion paper reviews EPA’s proposed rules to limit carbon dioxide emissions from existing power plants and presents policy recommendations on steps West Virginia could take to comply with these rules while also capturing the economic, social, and environmental benefits of expanding the state’s energy economy. This paper is part of a Center for Energy & Sustainable Development initiative to develop sustainable solutions for the economic, energy, and climate challenges facing West Virginia. The initiative is supported through a grant from the Appalachian Stewardship Foundation.
<a href="#"><u>Expanding Economic Opportunities for West Virginia under the Clean Power Plan</u></a>	2016	EPA released its final rule to limit carbon dioxide emissions from existing coal-fired power plants in late 2015. This analysis presents two compliance scenarios and policy recommendations that illustrate how an “all-of-the-above” energy strategy would help West Virginia comply with the Clean Power Plan while advancing economic development goals through an expanded energy economy. This report is part of a Center for Energy & Sustainable Development initiative to develop sustainable solutions for the economic, energy, and climate challenges facing West Virginia and is supported through a grant from the Appalachian Stewardship Foundation.
An evaluation of waste-to-energy options for Monongalia County, West Virginia	2016	In 2016, I worked with the Monongalia County Solid Waste Authority to investigate the feasibility of building a plant that would convert municipal solid waste (MSW), waste tires, and other feedstocks into synthesis gas (syngas), a mixture of carbon monoxide and hydrogen.

<a href="#"><u>Healing Our Land, Growing Our Future : Innovative Mine Reclamation in Southwest Virginia</u></a>	2016	Central Appalachia is in the midst of unprecedented economic and social change. As a region, we are compelled by the downturn of the coal industry to diversify our local and regional economies. Most observers, including coalfield leaders, now agree that such diversification efforts are long overdue. It is time to take action, not just to replace lost mining jobs, but to create a healthier, more resilient economy that promotes greater prosperity and preserves our region's rich cultural heritage and vital ecosystems. This is more possible than it once seemed, as the current state of uncertainty has led to a never-before seen spirit of collaboration and creative endeavor that is built on the recognition of the fact that we're all in this together. There's a window of opportunity to set a new course for our region, but we must be open-minded and act fast to seize it.
<a href="#"><u>The Clean Power Plan and West Virginia: Compliance Options and New Economic Opportunities</u></a>	2015	EPA plans to release its final rule to limit carbon dioxide emissions from existing coal-fired power plants in summer 2015. This analysis presents several compliance scenarios and policy recommendations that illustrate how an "all-of-the-above" energy strategy would help West Virginia comply with the Clean Power Plan while advancing economic development goals through an expanded energy economy. This report is part of a Center for Energy & Sustainable Development initiative to develop sustainable solutions for the economic, energy, and climate challenges facing West Virginia and is supported through a grant from the Appalachian Stewardship Foundation.
The Atlantic Coast Pipeline in West Virginia: Opportunities for Public Engagement regarding Erosion and Sedimentation	2015	In 2015, significant pipelines were being developed in West Virginia. Pipeline construction, especially in mountainous areas, can accelerate erosion and cause sedimentation of streams. This sedimentation can impact other rivers downstream from those directly crossed by the pipeline, including Tier 3 streams that receive special protections under West Virginia's antidegradation implementation procedures. Working with several community groups, I developed a guide detailing opportunities for public participation in the pipeline permitting process for the Atlantic Coast Pipeline project.
Carbon Dioxide Emission Reduction Opportunities for the West Virginia Power Sector	2014	This discussion paper reviews EPA's proposed rules to limit carbon dioxide emissions from existing power plants and presents policy recommendations on steps West Virginia could take to comply with these rules while also capturing the economic, social, and environmental benefits of expanding the state's energy economy. This paper is part of a Center for Energy & Sustainable Development initiative to develop sustainable solutions for the economic,

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