



# Renewable Energy and Sustainability Systems Graduate Programs



**PennState**  
World Campus

A world of possibilities.  
Online.

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“Renewable energy and sustainability systems are key components of the modern economy, providing a foundation for meeting the world’s future needs for energy and sustainable economic development. This strategic concern for individuals, companies, communities, and nations offers a dynamic opportunity for career growth. Working professionals can stay ahead of policy changes, technological

advances, and the growing competition for the world’s resources with Penn State’s online Master of Professional Studies in Renewable Energy and Sustainability Systems (MPS-RESS) program. The program is delivered by Penn State World Campus, a worldwide leader in online education, and offers the opportunity for you to draw upon the expertise and unique perspectives of world-class faculty and experienced energy industry and business practitioners.”

—Dr. Mark V. Fedkin  
Lead Faculty, Renewable Energy and Sustainability Systems

# Become a Leader in Renewable Energy and Sustainability Systems

If you possess a technical background and want to become an agent of change in the emerging green economy, Penn State's online renewable energy and sustainability systems programs are designed for you. Their overall objective is to provide an education that helps you become an expert in renewable energy and sustainability systems, with strong project development and leadership skills.

The RESS programs can prepare you to excel in a wide variety of commercial and industrial occupations that apply engineering principles to the business of energy. As a graduate of one of these programs, you should be equipped to perform tasks related to the management and development of renewable energy systems, even if your bachelor's degree was in a different technical field.

## Graduate RESS programs include:

**Master of Professional Studies  
in Renewable Energy and  
Sustainability Systems (MPS-RESS)**

**Graduate Certificate in Sustainable  
Energy Development**

**Graduate Certificate in Energy  
Transition Strategies**

**Graduate Certificate in Solar Energy**

**Graduate Certificate in Sustainability  
Management and Policy**



# Master of Professional Studies in Renewable Energy and Sustainability Systems (MPS-RESS)

The 33-credit degree program has been designed with a focused curriculum, but with a level of flexibility appropriate to a rapidly changing field. Professionals in this industry need technical depth in areas related to renewable energy, but they must also fully understand the applications of the technology in society, energy economics, and environmental constraints, as well as the entire project development process.

As a student in the MPS-RESS program, you will take a number of core courses to help you meet the demands of the dynamic renewable energy and sustainability marketplace. After completing your 12 credits in core courses, you will be able to tailor your studies with 12 credits in either our Sustainability Management and Policy or Renewable Energy Systems track. Then, to meet your individual learning goals, you will select 6 additional credits from a broad list of electives. Finally, you will complete the program by taking a 3-credit capstone experience in the management and design of renewable energy and sustainability systems or engaging in a 3-credit, special topics research experience with a faculty member.

## Core Program Courses

- › Energy Markets, Policy, and Regulation
- › Renewable and Sustainable Energy Systems
- › Ethical Dimensions of Renewable Energy and Sustainability Systems
- › Foundations in Sustainability Systems



“Some programs only cover policies or regulations. With Penn State’s program, I not only learned about these topics, but also the technical design and business skills I need to take a project from beginning to end. Now I see the complete picture.”

— Mauricio B., RESS graduate



# Sustainability Management and Policy Track

Sustainability is a core strategic focus for private industry and government sectors alike. There will continue to be an increasing need for professionals who understand the science of sustainability and possess the acumen to assess risk and plan for renewable energy projects as well as the communication skills to develop and implement new policy. The MPS-RESS Sustainability Management and Policy (SMP) track can help you excel in the growing fields of renewable energy, energy trading, and sustainability systems management.

Organizations need leaders who can help maintain an enterprise-wide focus on sustainability by providing a real-world, meaningful framework for their co-workers. To help you become a leader in the sustainability movement, the SMP track offers you an advanced education centralized in topics including:

- › science of sustainability
- › analysis of market and nonmarket strategies
- › analysis of energy policy development
- › technologies for developing sustainability systems
- › systems thinking approaches to unify the project development approach



**"From day one, nearly everything I studied in the program was directly applicable to my work. That includes finance, debt pro formas, emerging technologies, stringing, irradiance calculations, energy storage, energy markets, and energy policy."**


– Nicholas B., RESS graduate

# Renewable Energy Systems Track

As nations transition away from purely fossil fuel power, demand for skilled experts well-versed in renewable energy is expected to grow both domestically and internationally. The Renewable Energy Systems track of the MPS-RESS program can create graduates who can successfully move projects forward in the renewable energy industry.

Courses in the Renewable Energy Systems track will allow you to study popular renewables such as solar and wind, with the flexibility to align with your interests and professional goals. A background in systems science, engineering, or physics is strongly recommended for students interested in this track. The curriculum will cover topics such as:

- › economic analysis of renewable energy projects, development process, policies, and finance methods
- › environmental and economic criteria for implementation of solar energy conversion technologies
- › electric component selection, performance simulation, grid interconnection, codes, and design documentation
- › power generation and transportation fuels
- › wind and solar project development process and technical considerations



**“The RESS program enabled me to become an activator in some of the most challenging areas to decarbonize by equipping me with the thought process, confidence, and technical skills to drive change.”**

**– Laura T.,  
RESS graduate**

# Learning Outcomes

Our renewable energy and sustainability systems graduate programs are designed to allow working professionals to apply their learning immediately to their field. While competencies in certain areas depend upon what track or certificate you choose, graduates in general should be able to:

- › execute and evaluate sustainability or renewable energy systems using baseline, techno-economic, life cycle, or cost/benefit analyses
- › understand the principles of energy science, including resource availability and conversion technologies
- › lead the commercialization process relative to project and product development
- › evaluate sustainability decisions in the broader context of society's interests



**"I have been promoted from frontline worker to frontline manager and now into upper management at my company since completing the RESS program."**

**– Shannon B.,  
RESS graduate**

## Career Opportunities

An education from Penn State can prepare you to make an impact in the renewable energy industry by serving in professional roles such as:

- › project manager for sustainability projects
- › chief sustainability officer
- › sustainability analyst
- › solar energy project manager
- › commercial solar business developer
- › energy project engineer
- › bioenergy project coordinator
- › energy project analyst

# Stackable Graduate Certificates

The graduate RESS programs include the opportunity to take advantage of Penn State's new stackable credentials. This unique approach allows online learners to earn up to three (3) Penn State graduate certificates while working toward an MPS-RESS degree. It's an efficient way to quickly add valuable credentials to your résumé and gain new skills — without any additional course work, course fees, or application fees.



## **Graduate Certificate in Sustainable Energy Development (9 credits)**

Gain the ability to identify the market and non-market forces driving energy development and conduct ethical analyses of various energy pathways. This certificate will help you compare the sustainability of different energy resources and understand the roles of stakeholders in energy development projects.

## **Graduate Certificate in Energy Transition Strategies (9 credits)**

Acquire the technical fundamentals of renewable energy systems and assess their role in both local and global energy transitions. You can learn to evaluate energy projects using sustainability metrics, understand the impact of energy solutions on the energy-water-food nexus, and gain insight into the relationship between energy, climate, and natural resources.

## **Graduate Certificate in Solar Energy (12 credits)**

Learn to evaluate solar energy systems through techno-economic and performance analyses, using dynamic simulation tools. This certificate helps students understand solar energy principles, assess stakeholder preferences for solar projects, and consider the broader societal context in project development and sustainability decisions.

## **Graduate Certificate in Sustainability Management and Policy (12 credits)**

Develop an understanding of the core principles of sustainability and apply methods to assess sustainability indicators. You can gain the necessary skills to analyze market conditions for renewable energy and sustainable technologies, communicate key policy features, and evaluate human-environment system dynamics using systems thinking.



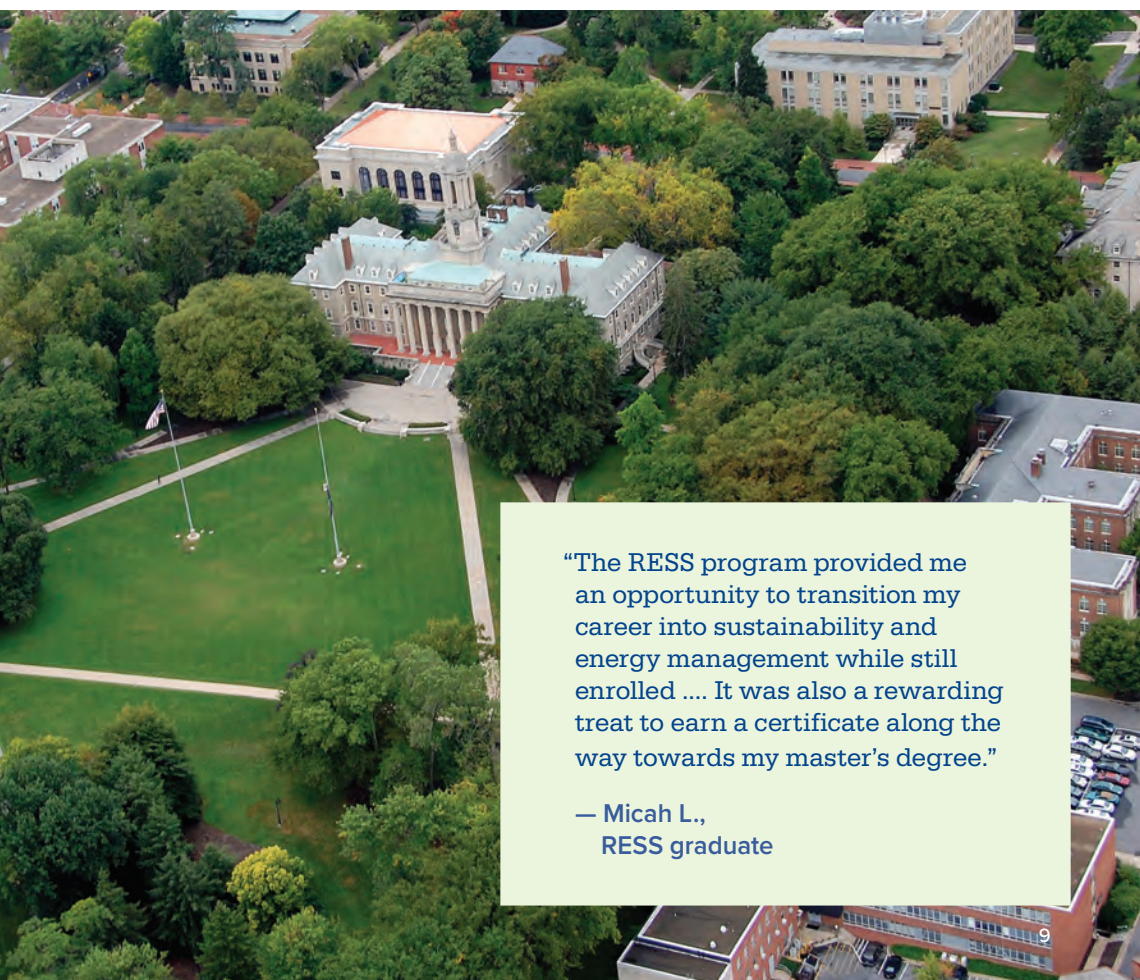


# Why Penn State?

## A Respected, High-Quality Education

In 1892, Penn State founded one of our nation's first correspondence courses; in 1998, we became one of the first major accredited universities to provide online education. We are committed to ensuring that you have access to a quality academic experience, even when you have job and family obligations to fulfill. Our programs have been developed through a partnership between Penn State's College of Earth and Mineral Sciences and Penn State World Campus, a pioneer in providing global online access to a real university education.

Your online courses are the same academically challenging courses that are taught on campus. Yet they give you the flexibility and convenience to study wherever you are, at times that suit your own schedule.



“The RESS program provided me an opportunity to transition my career into sustainability and energy management while still enrolled .... It was also a rewarding treat to earn a certificate along the way towards my master's degree.”

— Micah L.,  
RESS graduate

“Penn State’s strong reputation provides the credibility I need to take the next step professionally, which will open doors to future opportunities in large-scale renewable energy projects that have the potential for lasting global impact.”

– Ashley S., RESS student

## Frequently Asked Questions

### Why is Penn State the best choice for me?

#### **Flexibility and convenience**

Penn State knows that adults need flexible and convenient learning options to continue meeting their professional and personal commitments. As job responsibilities grow increasingly complex and family schedules become more hectic, online education enables you to study at times and locations that are convenient for you.

#### **Reputation**

Penn State is universally regarded as one of the finest educational institutions in the United States. Putting a Penn State degree or certificate on your résumé is a great way to prove to current and potential employers that you are a well-educated professional, and to broaden your career options.

#### **Accreditation**

Penn State is accredited by the Middle States Commission on Higher Education and has an outstanding reputation as a research and teaching university. Our courses are also accepted by most other colleges and universities in fulfillment of their requirements.

### Is this the real Penn State?

Absolutely. Penn State values online education as highly as it does resident instruction. Once you complete the requirements, you will be awarded a diploma identical to the one received by any Penn State student. There is no mention on your diploma that you completed your education online.

### How will I interact with my instructor and other students?

We use a variety of means to bring students and instructors together, including asynchronous electronic threaded discussions on the course website and email.

### What types of student support are available?

Penn State has developed a nationally recognized support system for students who are geographically removed from campus. Our academic advisers, technical support experts, customer service representatives, and Penn State instructors will help you get where you want to go — successfully — through distance education.

# Begin Your Application Today

To start your application and to view deadlines, visit:

[worldcampus.psu.edu/ressapply](http://worldcampus.psu.edu/ressapply)

## Graduate Certificates

### Application Requirements

- › online application form and fee
- › TOEFL or IELTS scores, if applicable

## Deadlines

Please visit your program's "How to Apply" page for application deadlines.

## Master's Degree

### Application requirements

- › online application form and fee
- › résumé
- › statement of purpose
- › references
- › official transcripts
- › TOEFL or IELTS scores, if applicable

Penn State's online renewable energy and sustainability systems programs are suitable for individuals of diverse backgrounds. However, for your admission to any of the programs, it is preferred that you have a technical background and are interested in more fully understanding the systems behind renewable energy and sustainability.

## Did You Know?

- › Penn State has aligned its online programs, student support services, policies, and procedures to support military personnel, veterans, and military family members.
- › Penn State World Campus has enrolled students from all 50 states and all 7 continents.



# Contact Us

## Program Questions

Program Office, Renewable Energy and Sustainability Systems

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Phone: 814-867-5401

## Admissions Questions

[worldcampus@psu.edu](mailto:worldcampus@psu.edu)

Phone: 814-863-5386

[worldcampus.psu.edu/admissions](http://worldcampus.psu.edu/admissions)



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