



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 (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. The programs are appropriate for newcomers to the renewable energy field as well as working professionals in the industry who want to advance their careers. 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.

Professional Development Opportunities

The course work in the renewable energy and sustainability systems programs is designed to be flexible enough to meet many educational goals. Industry professionals looking to brush up on choice topic areas can take courses as nondegree students to fulfill continuing professional development requirements. Course credits may transfer to a Graduate Certificate in Sustainability Management and Policy, Graduate Certificate in Solar Energy, or Master of Professional Studies in Renewable Energy and Sustainability Systems upon admission into one of these programs and can satisfy a portion of the program requirements.



“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.
MPS–RESS Graduate

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

The 33-credit MPS–RESS 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

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 MPS–RESS SMP track offers you an advanced education centralized in topics including:

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

Track Courses

- › Sustainability-Driven Innovation
- › Applied Energy Policy
- › Renewable Energy and Nonmarket Enterprise
- › Technologies for Sustainability Systems



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 RESS program can create graduates who can successfully move projects forward in the renewable energy industry.

Courses in the MPS–RESS 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
- › utility scale energy systems and supporting 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

Track Courses (choose 4 courses)

- › Solar Project Development and Finance
- › Solar Resource Assessment and Economics
- › Alternative Fuels from Biomass Sources
- › Commercial Solar Electric Systems
- › Engineering of Wind Project Development
- › Utility Solar Power and Concentration



Graduate Certificates

Our Penn State RESS graduate certificates offer the opportunity for you to gain a strong foundation of knowledge within the subject areas of solar energy or sustainability management and policy. Each graduate certificate allows you the ability to focus strictly on 4 courses within your choice topic area. Your certificate can act as either a stand-alone credential to enhance your career opportunities or as a stepping-stone toward earning the MPS in Renewable Energy and Sustainability Systems. All 12 credits from the Graduate Certificate in Sustainability Management and Policy or Graduate Certificate in Solar Energy may be applied toward the MPS in Renewable Energy and Sustainability Systems if you apply and are accepted into the program.

Sustainability Management and Policy Graduate Certificate

Required Courses

- › Sustainability-Driven Innovation
- › Applied Energy Policy
- › Renewable Energy and Nonmarket Enterprise
- › Technologies for Sustainability Systems

Solar Energy Graduate Certificate

Required Courses

- › Solar Project Development and Finance
- › Solar Resource Assessment and Economics
- › Commercial Solar Electric Systems
- › Utility Solar Power and Concentration

Master of Professional Studies

(33 credits)

Graduate Certificate

(12 credits)

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, in general, upon completion of your program, you 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

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





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.

Faculty

The courses in the graduate programs are designed and taught by Penn State professors whose teaching and research interests combine academic expertise and industry experience. They are leaders in their fields and experts in the subjects that they teach, and they are committed to making sure you get a quality academic experience in your online programs.

Employer-recognized and Accepted

The online renewable energy and sustainability systems master's degree program, as well as the related graduate certificate programs, will carry the same Penn State commitment to high quality that is respected by employers everywhere. And when you graduate, your credential will be the same as any other awarded by Penn State. Penn State World Campus is the real Penn State. The only difference is the way in which the courses are delivered to you.

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 earned 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

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 of Professional Studies

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

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Admissions Questions

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