



How Can You Prepare Yourself to be a More Effective Professional in the New Net Zero World?

You can get awarded the prestigious GWU School of Engineering and Applied Science (EEMI)'s **Energy Resilience Certificate (ERC)** or the **Advanced Energy Resilience Certificate (AERC)**. The certificates were designed by industry experts to help prepare the professional workforce to be better leaders, energy advisors, decisionmakers, investors, regulators, and educators. SEAS certificates formally recognize your development and commitment to advancing your professional knowledge and skills.

The EEMI Energy Resilience Certificate (ERC)

Four short courses make up the ERC. Each course can also be taken as a stand-alone class with a certificate of course completion awarded after passing a course quiz. Pass a final exam on all four courses to qualify for the EEMI Energy Resilience Certificate. Two courses are offered each of four overlapping semesters. Students can complete the program in four months or take longer.

- Summer Semester: June 1 to September 30
- Fall Semester: September 1 to December 31
- Winter: December 1 to March 31
- Spring Semester: March 1 to June 30
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Offered in the Summer and Winter Semesters

1. **Enterprise Resilience** – The principles of resilience and the capacity for systems to survive, adapt, and grow in the face of turbulent change are foundational to understanding energy assurance and security. Students will learn how designing for resilience can help enterprises and communities to overcome disruptions—whether from human or natural causes—and to improve their adaptability to changing conditions. The course draws extensively on case studies of companies that have adopted resilience strategies and have kept their operations and energy system functioning. **Instructor: Dr. Joseph Fiksel**, is the author of *Resilient by Design*, the seminal book on the topic, and co-founder of the Center for Resilience at The Ohio State. [More about the course.](#)
2. **Corporate Strategies to Thrive in a Decarbonized World** -- The realities of climate change are already starting to affect corporate bottom lines, forcing C-Suite executives to seek new ways to mitigate risk in their business operations and supply chains. Moreover, investor, employee, consumer, and community pressure are driving companies to contribute to the United Nation's Sustainable Development Goals (SDGs) in meaningful ways. In this course you will learn how to use energy consumption and carbon emissions as key performance indicators to reduce the cost

Current Student Affiliations
Shell Global Solutions, Dow Chemical, Arup, Energy Experts International, USGAO, American Family Assurance, Alaska Center for Energy and Power, Connecticut Green Bank, Sierra Club, Siemens, World Wildlife Fund, Clif Bar, Seattle Public Utilities, American Council for an Energy Efficient Economy, University Corporation for Atmospheric Research, Dow Chemical, IRENA, Port of Portland, Deloitte, and many



of doing business and as a basis to optimize business operations. **Instructor: Jimmy Jia** is a Managing Partner of the Jia Group. For over a decade, he has specialized in creating strategies for corporations, governments, and non-profits that advance their mission and vision while reducing their impacts on the planet. [More about the course.](#)

Offered in the Fall and Spring Semesters

3. **How to Design, Finance and Integrate Renewables in the Power Grid** – A key to understanding resilience is to know how the electric grid works and how renewable energy fits into it. This course provides participants with a grounding in the electric power grid and the knowledge needed to oversee, plan, finance and implement renewable energy projects. **Instructor: Stratos Tavoulareas** is an Energy Advisor working globally; until August 2019, he was the Lead for Global Power at the International Finance Corp. Advisory Services, part of the World Bank Group. He has 40 years of experience in the energy sector working in 80 countries on renewable energy and the transformation of the power sector to accommodate new technologies. [More about the course.](#)
4. **On the Road to Mass Market Electric Vehicles** -- Electric vehicle are leading the way to electrification of the economy. Students will learn about the types of electric vehicles, the EV market and factors driving market growth, and barriers to growth and how the market may overcome them. Key to the modernization of the energy system is the integration of electric vehicles into the grid system. **Instructor: Julian Bentley** is the Managing Director and founder of Bentley Energy Consulting with more than 20 years of experience helping the federal government address energy and environmental challenges. [More about the course.](#)

The SEAS Advanced Energy Resilience Certificate (AERC) (These courses are coming in the Fall 2021) Professionals can gain a more complete range of competencies by taking three additional short courses to obtain the AERC.

5. **How Electricity Markets Work** – In the United States, how electricity is bought and sold varies by region of the country. Municipally owned utilities and customer-owned rural cooperatives support some communities, but most customers are served by investor-owned electric utilities and each is regulated differently. Learn how retail and wholesale electricity prices are set, how power is procured, how the markets are regulated, and implications for the future given the greening and modernization of the electricity sector. **Instructor: Venki Venkateshwara** is President, Epoch Energy Advisory Group, and a long-time energy consultant who has worked at the world's leading management consultant firms, including McKinsey & Company, Charles River Associates, and FTI Consulting.
6. **Smart Energy Systems and Cybersecurity** – Smart energy systems incorporate information and communication technology (ICT) and control systems in power networks to increase the quality and reliability of power supply, facilitate the integration of renewable and distributed energy



sources, optimally plan transmission and distribution systems, and reduce system costs. Learn how smart energy systems work and can use network controls to optimize other utility services including water, waste, transportation, building services and others. **Instructor: Payman Dehghanian**, is an Assistant Professor of Electrical and Computer Engineering at George Washington University and an expert in power system reliability and electrical cybersecurity.

7. **Green Building Applications** - Green building, or sustainable design, is the practice of increasing the efficiency with which buildings and their sites use energy, water, and materials, and of reducing impacts on human health and the environment for the entire lifecycle of a building. Green-building concepts extend beyond the walls of buildings and include site planning, community and land-use planning issues as well.

Course Format

Each course consists of 10 to 12 hours of tutorial videos, which you can access on any device and take at any time during the semester. Each course also includes three optional ninety-minute live Q&A webinars with the instructor. **These certificate programs are ideal for busy professionals!**

More information: Contact esaltzberg@gwu.edu